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### Synchron versions

8710/36 - 50 c/s - 24 Fr.  
8710/37 - 50 c/s - 25 Fr.  
8710/30 - 60 c/s - 24 Fr.

### Special spare parts for synchron versions

Motor	4822 535 50011
Synchro-Belt	4822 358 20002
Resistor R1 - 40 $\Omega$ - 16 W	4822 115 50008
Resistor R2 - 56 $\Omega$ - 16 W	4822 115 40101
Resistor R3 - 100 $\Omega$ - 16 W	4822 115 50011

These parts are suitable for all synchron versions.

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: INSTALLATION  
INSTRUCTIONS

2X FP3

M2

## GENERAL DATA

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## A. GENERAL

The installation may consist of the following parts:

Type no.	Nomenclature	See Documentation
8710/00	Projector	
8711/00	Spool box 600 m	
8713/00	Spool box 1200 m	Projectors E501
8714/10	Spool box 1800 m	
8731/00	Base + mounting plate	
8731/00	Base + mounting plate for slide projector	
8727	Projection device for cinema slides	Bases and mounting plates E701
8729	Matching parts for synchronous drive of projector 8710, 3x220/240V, 50 c/a, 24 frames/sec.	
8733	Meter unit	
8734/00	Photo cell cable 1.20 m	
8734/05	Photo cell cable 2 m	
8734/10	Photo cell cable 2.5 m	
8734/20	Photo cell cable 3 m	
8734/30	Photo cell cable 4 m	
EL 5341/03	Amplifier M2	E1041
3852	Supply transformer	E1310
9569/10	Loudspeaker transformer unit	E1103
EL 5550	Loudspeaker	E1101
EL 5502	Loudspeaker	E1100

Pilotlamp

6.3V - 0.15A.

## B. LIST OF FIGURES

- Fig. 1 Diagram in sketch projector on base with 600 m, 1200 m, 1800 m spool box.
- Fig. 2 Dimension sketch projector on base with projection device for slides.
- Fig. 3 Graph for the determination of the booth window height and distance to the booth wall.
- Fig. 4 Connecting diagram.
- Fig. 5 Modification in amplifier EL 5341.
- Fig. 6 Adjustment of slide objective.
- a. correct
- b. wrong
- Fig. 7 Adjustment of the lamp house of the slide projector.
- Fig. 8 Top view of the projector.

## Mounting

It is recommended to work in the following order:

- Determine the focal distance of the projection lens and of the slide lens, if used (see "General Technical Data, E400").
- Determine the angle of rake which the projector should make on the base of the general drawing of the building and the documentation "General Technical Data E400."
- With the aid of the angle of rake found and the diagram 3, determine the height H on which the booth windows should be mounted and the distance M which should exist between the projector and the booth front wall.  
This distance has to be taken from the center of rotation of the mounting plate to the booth front wall. In view of an easy control, it is recommended not to make this distance too small. The smallest admissible distance for a projector without slide projector has been indicated in Fig. 3 by the curve K. For a projector with slide projector this distance is determined by the curve f  $\leq$  550. If the amplifier casing is mounted between both projectors, take into account on one part that the projector doors can be opened far enough and that on the other part the door of the amplifier casing can be opened far enough to be able to take the amplifier out of the casing.

Examples for the determination of the booth window height and the distance from the center of rotation of the mounting plate to the wall.

Example I Projectors without slide projector. The projector should incline 10°:

We go along the line + 10° to the right until the curve K is intersected.  
Going from this point vertically downwards, we find for the distance M from the center of rotation of the mounting plate to the booth front wall, 420 mm.  
Going horizontally to the right, we find for the height H on which the booth windows should be mounted, approximately 1120 mm.  
The distance M = 420 mm is the minimum distance which may be adhered to. Here a certain distance has already been calculated in for the control of the knobs on the front side of the projector and the replacement of the lens.  
Proceed as follows, if one wishes to place the projectors further away from the wall:

Go along the line of + 10° further to the right until, for instance, the vertical line of M = 500 is intersected. The distance M is then 500 mm. Make the distance M not more than approximately 100 mm greater than it has been found from the graphs. This is because the possibility exists that with short focal distance of the film objective, the light beam becomes too wide and is partly cut off by the booth window. The height for the booth windows is now found by going horizontally to the right starting from the point of intersection already found. Here a booth window height = H approximately 1110 mm is found. For values lying in between the angle of rake and the distance M, additional lines can be drawn in the graph.

Example II Projectors with slide device. The projectors should incline 5°.a. The focal distance of the slide objective is greater than 550 mm.

We suppose that the focal distance of the slide objective should be 600 mm. We go along the line of + 5° to the right until the curve of f = 600 is intersected. Going from this point of intersection vertically downwards one finds a distance of 500 mm for M on the horizontal axis. Going horizontally to the right one finds for the booth window height H = approximately 1150 mm.

b. The focal distance of the slide objective is smaller than or equal to 550 mm.

The minimum distance M from the wall to the center of rotation of the mounting plate is determined here by the points of intersection of the curve f  $\leq$  550 with the lines indicating the angle of rake.  
With an angle of rake of 10° forward, this point of intersection therefore lies on M = approximately 475 mm and H = 1110 mm.

## 4. Matching to various mains voltages

I. The mains voltage amounts to 220 V (380 V three-phase current).

a. Without meter unit 8733 in projector base

The mains voltage is connected to the 225 V tap of the supply transformer 3852.  
The supply for the projectors is taken from tappings between which a voltage prevails of 110 V with burning projection lamp (for instance 0-118). The amplifier can be connected directly to the mains (220 V).

b. With meter unit 8733 in projector base

As under a, but the projectors should be connected to taps between which a voltage of about 113 V prevails with burning projection lamp.

II. The mains voltage amounts to 110 V (190 V three-phase current).

a. Without meter unit 8733 in the projector base

In this case the projectors can be connected directly to the mains without interconnection of the supply transformer 3852. Change the soldering connection of

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the primary winding of the supply transformer of the amplifier EL 5341 to 110 V (see documentation E1041, page 7). The amplifier casing can then be connected directly to the mains.  
Use separate fuse groups for the projectors and the amplifier.

b. With meter unit 8733 in the projector base

The mains voltage is connected to the 111 V connection of the supply transformer 3852. The supply of the projector is taken from two tapings, between which a voltage of about 113 V prevails with burning projection lamp (for instance, 127-240 or 111-125). The amplifier casing can be connected directly to the mains after the soldering connections of the supply transformer of the amplifier EL 5341 have been changed to 110 V. See for this, documentation E1041, page 7 (T2). Use separate fuse groups for the projectors and the amplifier casing.

III. The mains voltage amounts to 127 V (220 V three-phase current).

a. The mains voltage is connected to the 127 V tap of the supply transformer 3852. The supply for the projectors is taken from tapings between which a voltage prevails of 110 V with burning projection lamp (for instance, 0-110). The amplifier can be connected either to the 225 V tap or between two phases of the mains (220 V). The latter point has the advantage that it is possible to protect the projectors in the amplifier casing separately in an easy manner.

b. With meter unit 8733 in the projector base

As under IIa but the projectors must be connected to tapings between which a voltage of about 113 V prevails with burning projection lamp (for instance, 127-240 or 111-225).

5. Modification M2 amplifier

When installing the M2 amplifier in combination with FP3, the following modifications should be introduced:

a. Loosen point 2a from point 62 of RE1 (dotted line, fig. 5);

b. Connect point 3a (of the female plug) of the EL 5440/00 to point 63 of RE1 (heavy line in fig. 5).

By this it is obtained that the framing and pilot lamps always burn.

voltage across these lamps and the lamp relay is 5 V.

Before placing the projectors and the amplifier, all other operations in the booth should be finished. If the installation is provided with a meter unit 8733, then place the base with the meter unit on the left. In this way it is possible to read the meter when standing both at the left or at the right projector. Connect the projector and the amplifier provisionally. Fill the maltese cross mechanism with thin oil, type number 3671 until the red mark on the gauge glass. Place the projection lenses. Adjust the projectors in such a way that the projected pictures exactly fall onto each other and the light beam goes through the middle of the projection window.

Mark off the holes of the fixing bolts in the floor and fit the wedge-bolts. (Move the projectors from their places if necessary).

Fix the projectors.

Connect the amplifier and the projectors definitely.

Take off all superfluous (rust-preventing) grease from the projectors.

When de-greasing the capstan, be careful that the quartz bar and the micro-optic do not become greasy.

C. PROJECTOR WITH A PROJECTION DEVICE FOR SLIDES

Here proceed in the following way:

1. Install projector in the same way as indicated in the previous instructions so that the projector is properly directed for projection of films.
2. Now project a slide and push the lens holder until the projector picture falls onto the middle of the screen. The optical axis of the lens holder should, however, always remain parallel with the optical axis of the slide. See fig. 6a. Only in this way a uniform sharpness of each part of the projected picture is obtained. The lens holder may not be positioned as indicated in fig. 6b as otherwise the projected picture will become partly non-sharp.
3. Focus the picture on the screen by focusing the lens.
4. Unscrew the large knurled ring "C" (fig. 7) and push the lamp backwards and forwards and to the left and to the right until maximum brilliance on the screen is obtained. Then tighten the ring.
5. Unscrew the small ring "D" (fig. 7) and move the lamp upwards and downwards so that neither shadows nor dark spots are visible on the screen. Then also tighten this ring.
6. If the projected picture does not stand completely upright on the screen, then remove the cover from the lamp house and partly undo the four fixing screws "A". Then adjust the four adjusting screws "B" so that the picture moves into an upright position. Retighten the screws "A" and place the cover on the lamp house again.

USE OF THE PORTABLE PROJECTOR TYPE 8710 IN A PERMANENT INSTALLATION

The only points which should be changed of the portable projector type 8710 are the following:

- Drill two holes as indicated in fig. 8 into the upper part of the projector.
- Press two grommets into these holes, code number 22 468 61.0
- Pass a few wires of gun-cotton through these two grommets and this in such a way that these wires form a loop. Connect this loop in the projector to the fire loop and fix the cord for the downers to this loop outside the projector.

Note For the installation of electro-magnetic booth windows (EL 4701) in combination with FP3, see documentation E501A.

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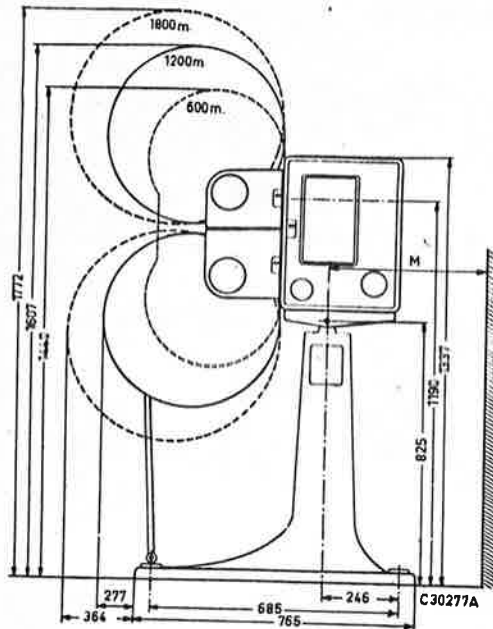


Fig.1

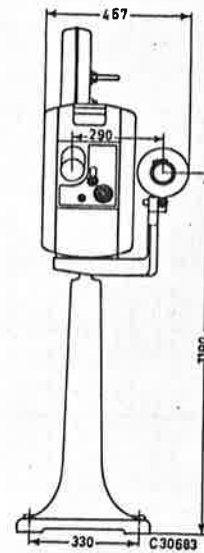


Fig.2

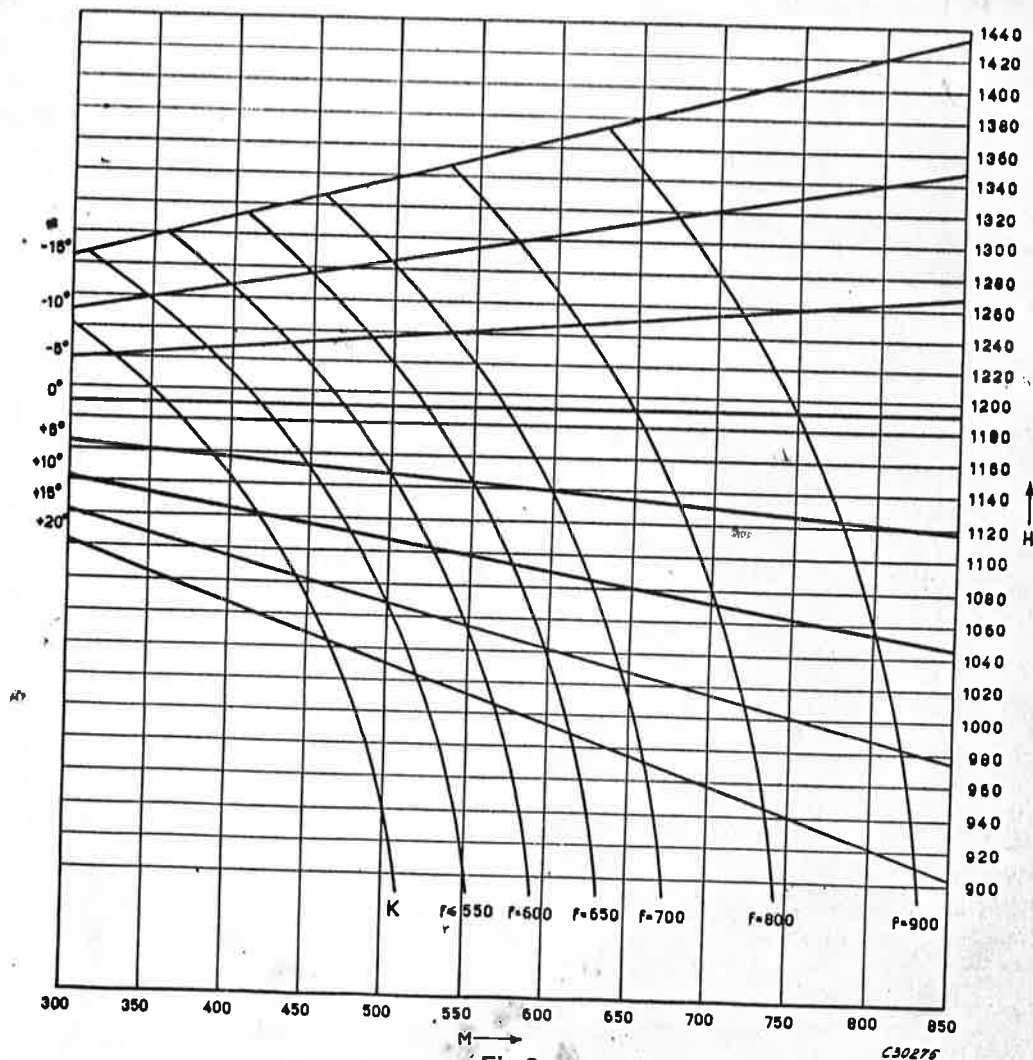


Fig.3



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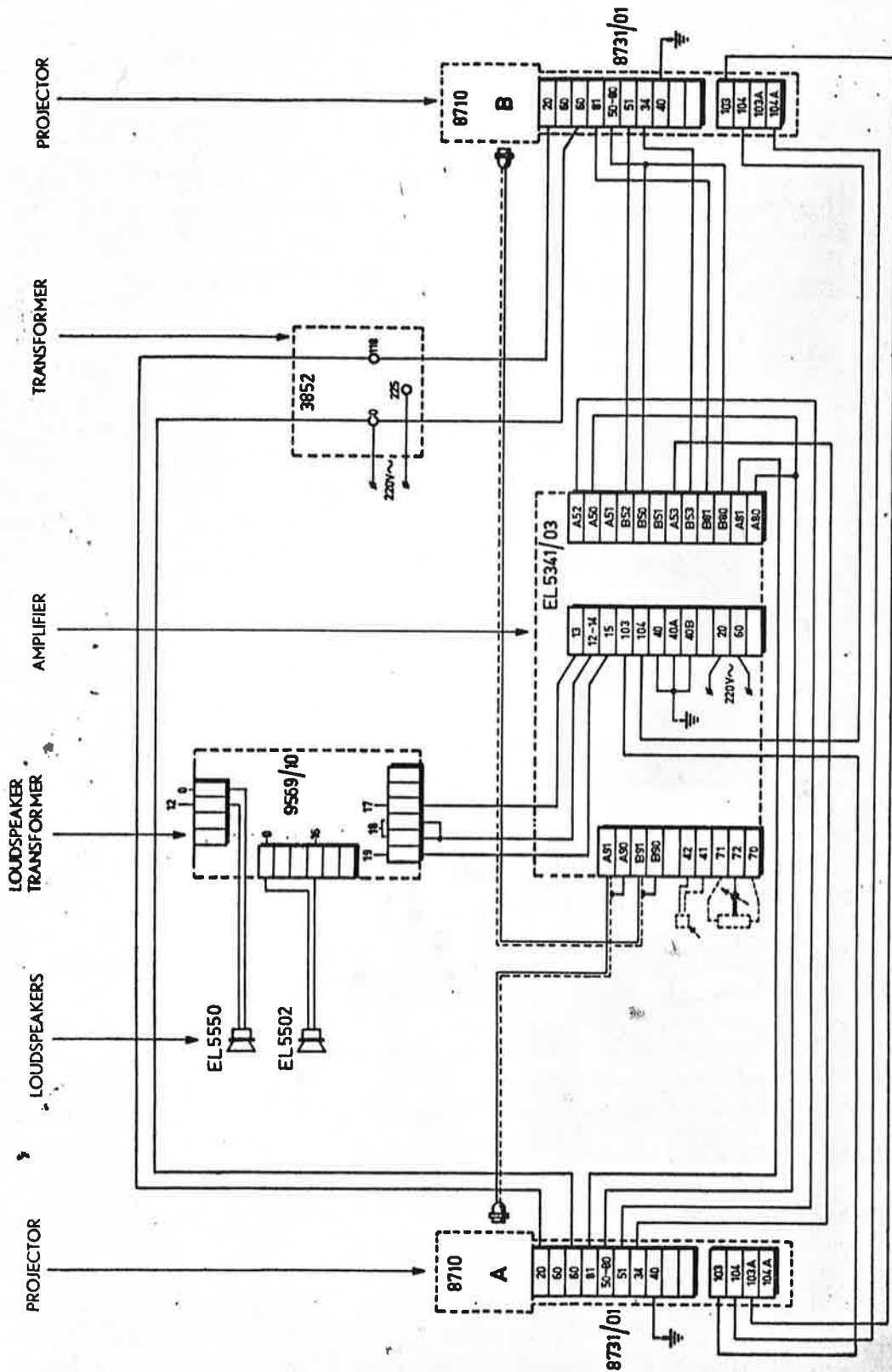
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*Tonlampen Philips 3824c. 1,48 A. - 65V. 7x285.*



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*Fig. 4 - Illegalsys Philips 8024N/1MP.*

Fig. 4

*Philips 60V-0100N. Philips 8008 N 1MPX.*

*2 pinner på siden*

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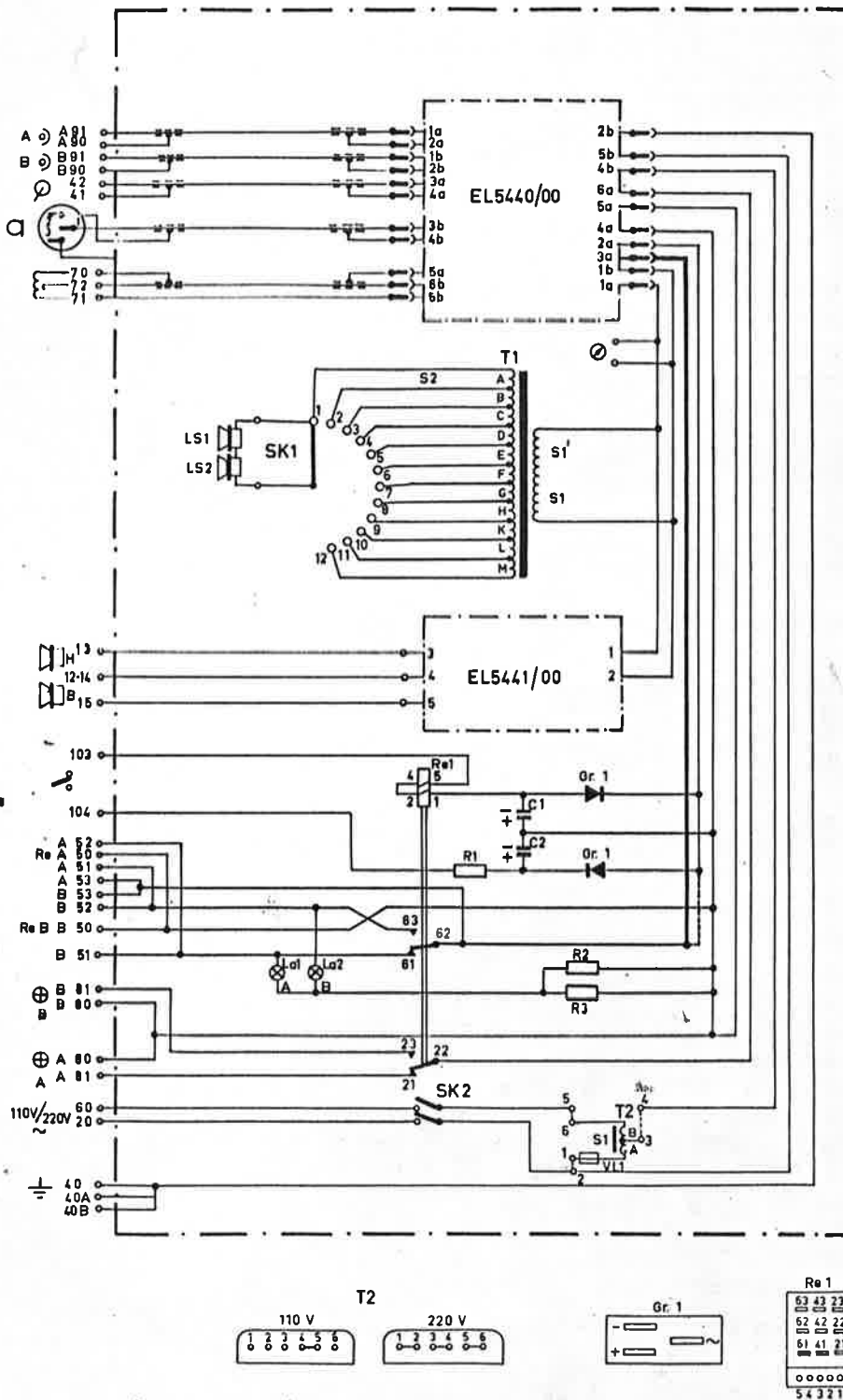


Fig 5

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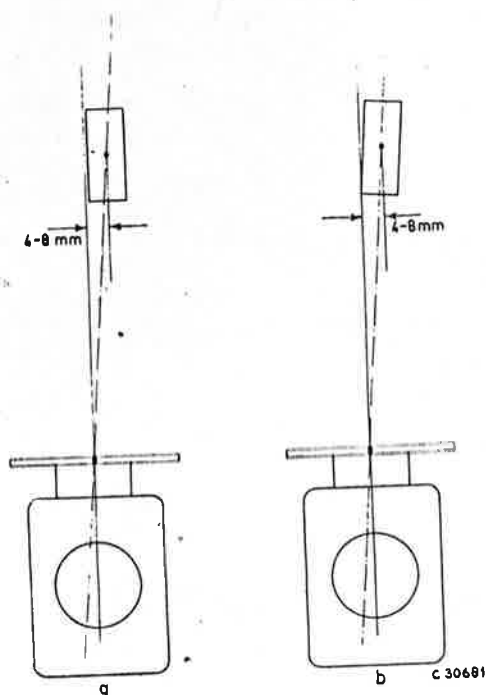


Fig. 6

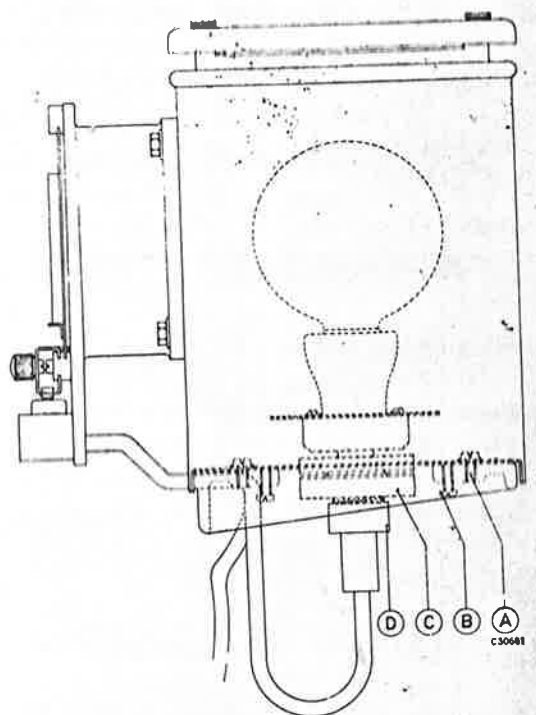


Fig. 7

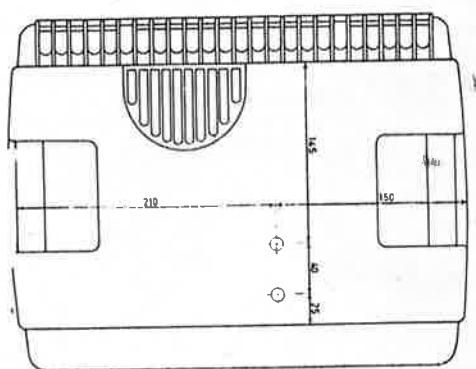


Fig. 8



<h1>PHILIPS</h1> <p>SERVICE CINEMA EINDHOVEN</p>	TYPE: 8710	PORTABLE EQUIPMENT	E1200
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## A. General

1. This documentation consists of the following chapters:

- A. General
- B. Description of diagram
- C. Mechanical description
- D. Mounting of the installation
- E. Control
- F. Adjustments
- G. Replacement of parts
- H. Remarks
- I. Modifications for FP3
- J. Maintenance and greasing
- Figures and lists of parts

## 2. Summary of type numbers

Projector	8710/00
Double spool box 600 m	8711/00
Double spool box 1200 m	8713/00
Double spool box 1800 m	8714/00
Tripod for 600 m spool box	8715/00
Tripod for 1200 m or 1800 m spool box	8715/10
Fixed base	8731
Amplifier for single projector	EL 5340/00
Amplifier for 2 projectors	EL 5340/01
Universal supply transformer	EL 5006
Set of reconstruction parts for 3-phase synchronous motor	8729

## 3. Technical data

- a. The complete installation packed in 6 cases and 2 flexible covers. For weight and dimensions see the catalogue sheet which is supplied by the Commercial Department E.L.A.
- b. Mains voltage  
Motor and projection lamp are suitable for 110 V.  
Exciter lamp 6-V.  
Frame and lighting lamp 5 V.  
Connection to mains with different voltages is possible since the installation is connected with a supply transformer.  
See documentation N1201.
- c. Lamps applied:
 

Projection lamp	- 7240 C.
Exciter lamp	- 3874 C.
Frame lamp	- 8002 N.
Photo electric cell	- 3538
- d. Fuses.  
One fuse has been placed in the installation, see chapter D.

## B. Description of diagram (fig. 9)

The circuit diagram of the projector has been given in fig. 9. The various parts have been marked as follows:

- SK1 Switching on and off the motor.
- SK2 Switching on and off the projection lamp.
- SK3 Centrifugal switch put into action by the belt of the spool box drive.
- SK4 Press switch which is switched on by the automatic film rupture device when closing the door of the projector.
- SK5 Push-button switch for starting the motor.
- SK6 Door contact of the film spool box.
- SK7 Relay contacts of projection lamp.
- M Coil of the relay.
- L1 Projection lamp.
- L2 Exciter lamp.
- L3 Lighting lamp.
- L4 Frame lamp.
- M Motor.
- B1 Photo electric cell.

- O1 Starting capacitor of the motor.
- C2 Anti-interference capacitor.
- C3 Anti-interference capacitor.

When looking at the motor circuit, it appears that the switches SK4 and SK1 must be closed and SK5 must be depressed before the motor can be started. As soon as the motor has come up to speed, SK3 is closed by centrifugal working and SK5 can be released. The switches SK2, SK6, SK3 and SK4 form part of the relay circuit. When the relay is energized, contacts SK7 close and the projection lamp switches on. When the projector door (SK4) and spool box door (SK6) are closed and the projector has come up to speed, (SK3), only SK2 needs to be switched on to energize the relay (Re) and so switch on the lamp, (SK7).

By this circuit the following precautions exist:

1. Motor and projection lamp can not be switched on before the projector door is closed, (SK4).
2. The projection lamp cannot be switched on before the spool box and projection door are closed, (SK6) and (SK4) and the motor has the correct speed.
3. When the film breaks or the formation of loops above the maltese cross becomes too great or too small, motor and projection lamp switch off, (SK4).

The auxiliary winding of the motor has been connected via the capacitor C1 of 10  $\mu$ F. The capacitors C2 and C3 serve for the suppression of the spark formation on the switch contacts when the contacts SK1 to SK6 inclusive are opened.

## C. Mechanical description

### 1. General

This portable projection installation has been designed for showing 35 mm films with optical sound. The driving motor is single-phase asynchronous, 110 V, 2800 r.p.m. The installation can be connected to mains with a frequency of 40, 50 or 60 c/s. Motor and shutter shafts have been equipped with a 3-stage pulley. By putting the drive belt in one of the positions corresponding to 40, 50 or 60 c/s, the exact number of pictures per second can be obtained. See chapter E.

The installation is connected to the mains via a supply transformer. The projector can be supplied with a double 600, 1200 or 1800 m spool box. Normally the projector is placed onto a tripod. In a simple manner the projector can be made suitable to serve as a stationary installation, see chapter I.

The frictions of the spool boxes are not adjustable. By providing the frictions of the correct lubricant the required film tension is automatically obtained. See chapter J.

### 2. Safety devices

- a. The door on the rear side of the projector can not be opened before the 8-pole plug has been removed.
- b. The door on the control side cannot be closed before the 2 pad rollers have been closed.
- c. In the case of film fire, the loops of gun cotton immediately burn away. The knife which has been fixed to these loops with a steel wire is then pulled downwards by a spring. This knife cuts the film into two pieces and shuts the projection room off from the film spool box.
- d. The centrifugal switch cannot function when the belt of the winding friction is not present.
- e. See also chapter B.

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## D. Mounting of the installation

The projector is so placed onto the tripod that the cams on the mounting table fall into the holes on the lower side of the projector. By tightening two knurled screws the projector is fixed. Then the film spool box is fixed to the projector by making both cams on the film spool box fall into the holes destined for that purpose in the rear panel of the projector. Here the handle is pushed forward and then turned a quarter of a turn anti-clockwise. The rearmost supporting leg of the tripod is now fixed to the spool box and finally the driving belt of the spool box is provided over the snare disc on the novotext toothed wheel and the snare disc on the film spool box.

Determine the mains voltage and the frequency on the spot. With mains voltages of 155 V, the group, to which the installation has to be connected, must be protected with a fuse of 20 A. With mains voltages above 155 V a fuse of 10 A has to be provided. Adjust the supply transformer to the correct mains voltage. Lay the belt of the projector motor on the pulleys corresponding to the mains frequency and this:

- with 40 c/s on the greatest motor and smallest projector disc,
- with 50 c/s on the middle motor and middle projector disc,
- with 60 c/s on the smallest motor and largest projector disc.

Connect the projector amplifiers, loudspeakers and supply transformer according to figs. 10 and 11.

## E. Control

Open both pad rollers and the skate.

Insert the film as indicated in fig. 13. Put the maltese cross just through the intermittent position and turn the framing device in the middle position. Now insert the film up to the intermittent sprocket inclusive and be careful that the whole picture is visible in the frame. Now close the skate, make a loop above the film track and close the upper pad roller.

Now lay the film via the capstan, the lower pad roller and the safety fire trap to the take-up reel. The correct size of the film loop between the intermittent sprocket and the capstan is obtained when the film can be pulled to about  $\frac{1}{2}$ " from the corner of the switch box. Then close the lower pad roller and fasten the film on the take-up reel. Turn a few times by hand in order to see whether the loops have the correct size.

Switch the motor on by putting the respective switch in the position "Motor" and then depressing the push-button. When the projector has come up to speed, the push-button can be released. Look through the projection objective to the passing starting piece of the film and check the correct framing position. As soon as the last foot figure is passed, the lamp should be switched on.

Now focus the picture.

The exact skate pressure can be adjusted as follows:

Undo the screw so far that the picture starts jumping and then turn a little back until the picture is just stationary.

## F. Adjustments

The adjustments described below have already been carried out in the factory. They should only be repeated when a respective part has been moved or after the replacement of a part.

### 1. Pad rollers fig. 1

Both pad rollers should be so adjusted that when inserting 2 film thicknesses on the sprocket, the rolls still just run free. When inserting 3 film thicknesses, the rolls should run heavily. The pad rollers can be readjusted by undoing the screws of the stop plates and putting the plates in the desired position.

### 2. Shutter fig. 2

Coarse adjustment. Undo the 4 fixing screws on the shutter. Place the maltese cross half-way in the intermittent position and put the shutter in a vertical position. Tighten the screws.

Fine adjustment. Project a test film for travel ghosts and check on which side the picture shows a ghost image.

Ghost image on the upper side of the picture: adjust shutter in the direction of rotation.

Ghost image on the lower side of the picture: adjust shutter opposite to direction of rotation.

### 3. Skate "8" fig. 3

Insert a film and close the skate. After the lock screw in the lever has been somewhat undone, the adjusting screw 5 can be screwed in until it just touches the lever. After that, re-tighten the lock screw.

### 4. Rail "36" fig. 1

Remove the Philite ornamental cover from the front side and undo the 2 nuts of the rail. Place the rail so that the lower side just runs free from the sprocket.

### 5. Glass bar "24" fig. 1

Be careful that the glass bar remains free from grease stains and finger prints. Never touch the flat ends with the fingers. The bar should be so placed that the end just remains within the sound-track (approx. 0.5 mm). This in order to prevent touching the film. The light of the optical system should fall in the middle of the flat end of the bar and not on the side.

### 6. Slit optice fig. a

Nothing should be altered on the adjustment of the part unless absolutely necessary.

Place the exciter lamp into the sound-head and connect the projector. Connect the amplifier and the loudspeakers. Connect a voltmeter over the amplifier output in parallel to the primary winding of the loudspeaker transformer.

Unscrew the two screws of the casing of the exciter lamp and move the casing in a horizontal direction until the light line falls in the middle of the glass bar. This can be checked by moving to and fro a fine point of paper over the end of the bar. Re-tighten the screws of the lamp house. Lay a frequency loop of 8000 or 9000 c/s in the projector. Loosen screws "B" until the slit optic can be turned with the adjusting key 22 532 22. Keep the film tight around the capstan by hand and adjust the light line with the eye vertically to the sound-track. Tighten screw "B" provisionally.

Loosen screw "A", start the projector and turn the adjusting ring of the optic so far that the voltmeter has maximum deflection.

Then correct the maximum deflection by placing the light line exactly vertical with the adjusting key. Then focus the lens on the sharpest point (maximum deflection).

Fasten screw "A".

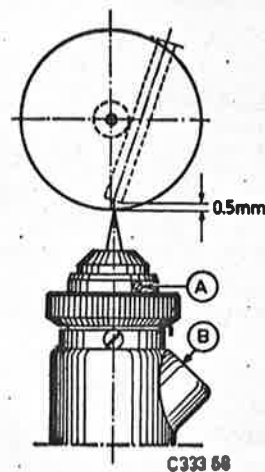


Fig. a

Move the whole lamp house vertically, if in one of the extreme positions maximum deflection can not be obtained, when adjusting the slit optic with the adjusting ring. Then check whether the light line still falls in the middle of the glass bar. Correct if necessary, see above.

## 7. Pressure roller sound-track fig. 5

The pressure roller should run with a force of 1200 grams against the sound-track. This force is obtained by turning the tension cup about 270°. Then fix with the screw.

### Axial adjustment.

Lay a test film for determination of the correct place of the sound-track, a so-called "buzztrack", into the projector.

Start the projector with projector door open. This can be done by keeping the automatic film rupture device pressed backwards.

Adjust the pressure roller by turning the screw "6" so that the high and the low tone are no longer heard in the loudspeaker. Be careful that the volume control stands on maximum. Then secure screw "6".

Undo the adjusting screw from the red arrow and place the arrow in front of the mark in the lever.

## 8. Lamp house and hollow mirror fig. 12

- Remove the lamp house and adjust the mirror according to fig. 12. This can be done in a simple manner with an adjusting gauge, fig. 14. Then mount the lamp house including the ventilation tube.
- Start the projector, ignite the lamp and focus the mask sharply on the screen. Loosen the 4 screws "B" fig. 4 on the lamp fitting and move the fitting until the screen is lighted as uniformly as possible. Then secure the fitting.
- When the support "A" fig. 4 has been loosened, point b should be proceeded by the following. Remove the lamp house and loosen the 4 screws of the support so far that, moved by hand, it remains standing in any position. Then carry out the adjustment as described under a. Undo the screws of the lamp fitting and place the fitting as far as possible backwards. Turn the lens holder entirely forward and place the lens on the front side of the hole. If possible, use a lens with big focal length. Start the projector and ignite the lamp. Move the lens until a picture of the glow spirals appear on the screen. Now move the support until the spirals are projected uniformly divided on the screen. Now secure the support. For this the lamp house has to be removed.

## 9. Centrifugal switch "13" fig. 2

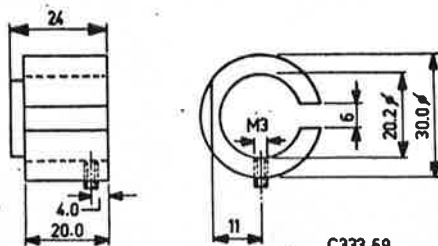
The projection lamp should switch off automatically when the number of revolutions of the projector fall below 16 pictures per second.

The adjustment is carried out as follows:

Slide onto the shaft of the centrifugal switch a bush according to fig. b.

Remove the Philite cap "27" fig. 1. Turn both adjusting screws of the contact springs of motor and projection lamp back. Screw the adjusting screw of the motor contact so far in that when depressing the start knob the centrifugal switch just takes over the motor contact. Screw the adjusting screw of the contact of the projection lamp so far in that the lamp relay rattles. Then check the motor contacts since both contacts are on one spring.

**N.B.** The adjustment should be carried out with insulated tools as these screws are under tension.



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Fig b

## 10. Film rupture switch SK4 fig. 1

The contacts of this switch are closed when, on closing the door on the control side, the pin on this door pushes against the lever "2".

The correct adjustment is obtained as follows.

Keep this lever depressed by hand, start the projector and ignite the lamp. When the lever is released motor and lamp should switch off simultaneously. If necessary readjust contacts "9" fig. 2 with the screws. Secure with the counter-nuts. When, in the left upper corner of the projector between the casing and the door on the control side, a plate with a thickness of 1 mm is clamped, it must be possible to start motor and lamp.

When this plate is replaced by one with a thickness of 2 mm, this may no longer be possible.

Further, one should take care that the pin in the door only touches a small part of the lever so that, with a slight touch from the film loop, the switch switches off.

## 11. Frictions of the film spool boxes

The required film tension is obtained by providing the frictions of the correct lubricant.

Tension roller of 600 m spool box. Adjust this roller so that the friction is about in the middle of the hole in the spool box.

Check with a full and an empty spool whether this does not foul against the side of the spool box.

## G. Replacement of parts

### 1. Pad rollers fig. 1

The complete pad roller unit can be removed by releasing the fixing screw.

### 2. Shutter fig. 2

Put the optical system in the upper position, undo the nut of the belt stretcher and take the belt of the disc. Take the projection lamp out of the holder and remove the lamp house with ventilation tube. Then loosen the 3 screws of the pulley "20" and take this from the shaft. Remove the screw out of the bush to which the shutter has been fixed and take the bush with shutter from the shaft. By removing the 4 screws, the shutter can be replaced.

### 3. Sprocket with 40 teeth "34" fig. 1

Remove both pad rollers and the film stripper. Remove the Philite ornamental cover, unscrew the nuts of the rail and fix the rail in the upper position. Remove the film spool box. Turn the sprocket so far that the fixing screw can be released through the opening to the spool box.

After the removal of this screw the sprockets can be pushed from the shaft.

When mounting be careful that the sprocket is pushed from the shaft until the stop and that the screw comes onto the flat side of the shaft.

### 4. Novotext toothed wheel "12" fig. 2

Remove the shutter and the sprocket with 40 teeth.

Screw the screw out of the hub of the snare disc.

After the removal of the 3 screws from the support of the sprocket shaft, the shaft with support can be pulled out of the wheel hub. When mounting be careful that the toothed wheels have a small but perceptible clearance.

### 5. Maltese cross mechanism "35" fig. 1

Turn the optical system in the upper position.

Take the lamp house with ventilation tube and the shutter out of the projector. Remove the sprocket with 40 teeth, the novotext toothed wheel and the rail "18".

Take the skate from the lever and push the fire loop "7" from the pin.

Unscrew the screws of the mechanism on the control side. Thereby hold the cross; after that it can be removed.

When mounting, mind the following points:

- The film track holder should lie vertical to the optical axis.
- The novotext toothed wheel should have a small but perceptible clearance.

## 6. Maltese cross sprocket "13" fig. 1

Take the skate out of the projector and remove the runner plate. Undo the screw with which the sprocket has been fixed. Undo the 3 screws of the bearing bush "A" in fig. 1 and take this from the shaft. Now the sprocket can be pulled from the shaft.

When mounting, be careful that the rubber sealing ring is placed behind the sprocket again.

If necessary one can use a sprocket stretcher, code number A9 403 07.

## 7. Glass bar "24" fig. 1

Remove the cap of the photo electric cell and the cell. Loosen the screw of the leaf spring and push the bar upwards through the hole, which has been bored for that purpose in the housing of the photo electric cell. Never touch the flat ends with the fingers and take care that the bar is entirely free of grease.

## 8. Holder of the photo electric cell "19" fig. 1

After the cap, the photo electric cell and the glass bar have been removed, the housing of the photo electric cell can be unscrewed. Then remove the fly wheel and unscrew the holder of the photo electric cell.

When mounting be careful that:

- the holder of the photo electric cell is free from oil and dust;
- the cam in the housing comes into the hollow of the holder;
- when soldering, acid-free solder is used.

## 9. Slit objective fig. 2

Never dismount this object unless it is absolutely necessary.

Undo the connections 50 and 81 on the connecting block and remove the fly wheel from the capstan. Undo both screws from the lamp house and remove this out of the projector.

Remove the screw "B" with the underlying plug and replace the slit optio.

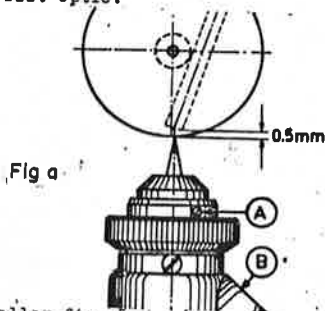


Fig 2

## 10. Pressure roller fig. 2

Take the cap off and push the pressure roller from the shaft.

When mounting be careful that the roller turns easily but without clearance. If necessary readjust with the aid of ring "1".

## 11. Flat mirror "1" fig. 1

After the ornamental cover has been removed, the mirror holder can be screwed out of the projector. By bending the fixing lips in the corners of the holder cautiously, the mirror can be replaced. Be careful that the new mirror is quite clean.

## 12. Condensor lenses "10", "10a", fig. 2

Take the projection lamp out of the holder. Place the optical system in the upper framing position and remove the ventilation tube (screw "F", fig. 4). Loosen the lamp house and put the shutter in horizontal position. Remove the leaf springs and take the foremost lens out of the holder. After that the spacer and the other lens can be removed.

When mounting be careful that the lenses are free from grease and dust.

## 13. Hollow mirror "1", fig. 4

Take the lamp house out of the projector. Remove both tube halves out of the housing.

Undo the screws of the mirror and replace them. Be careful that the mirror is properly clean.

## 14. Centrifugal switch "13" fig. 2

Remove the fly wheel from the capstan and undo the connections 20, 20B, 51 and 51C of the connecting block. Undo the 2 ornamental nuts of the Philite cap and remove them.

After the 4 screws on the control side of the mounting plate have been undone, the whole can be taken out of the projector. Loosen the other electrical connections and take the centrifugal switch from the mounting plate by unscrewing the fixing nut.

## 15. Tension spring of the optical system "3" fig. 2

Put the optical system in the upper position. Take the spring eyelet from the pin in the top of the projector and pull the spring on the lower side out of the hollow toothed rack.

Mounting can be done by pulling the spring with a strong wire through the toothed rack.

Be careful that the plate of the spring comes into the hollow of the toothed rack. By tautening the wire the spring eyelet can be laid over the pin.

## 16. Motor and ventilator "16" fig. 2

Remove the driving belt and the fly wheel from the capstan. Undo the connections 20C, 60 and 63 on the connecting block. Put the optical system in the upper position and remove the ventilation tube. The motor can now be unscrewed on the control side and be removed (3 screws).

## 17. Take-off friction "1" fig. 3

Remove the cover and push the shaft out of the support from the inner side of the spool box.

When mounting be careful that there is sufficient consistent grease EL 4851 in the friction.

## 18. Take-up friction 600 m spool box fig. 3

Remove the ring and take the cord disc "6" off the shaft. This can be replaced if necessary. When mounting, be careful that the felt is properly oiled with cardon oil 8657.

## 19. Take-up friction 1200 and 1800 m spool box fig. 7

Remove the elastic ring and the cover. Screw the screw out of the hub of the internal friction disc; this can now be removed.

On the other side pull the spool shaft out of the projector. The ball-bearings can now be replaced after the spring rings have been removed.

When mounting take care that the friction disc is mounted with sufficient consistent grease EL 4851.

## H. Remarks

The execution of the installation has undergone a few changes, in the course of years. Some different versions are discussed below.

### 1. Maltese cross

The old version has one firm mask. The new version has 3 interchangeable masks. When an old type of maltese cross is sent in for repair, the cross is modified to the new version. The 3 masks are supplied with the installation.  
Old mask 22 519 41.2

### 2. Intermittent sprocket

The new sprocket has a bevelled rim on both ends of the hub. On the side of the maltese cross an oil ring has been mounted on this bevelled rim in order to avoid leakage along the shaft for intermittent movement.

### 3. Lamp house

There are 3 versions of it:

a. The appearance of this version is identical to that of the version discussed in this documentation. The hollow mirror does not heat.

b. With this version the construction of the lamp house has been modified a little by the development of a lamp with a greater quantity of light. The mirror has been deleted.



<b>PHILIPS</b> SERVICE CINEMA EINDHOVEN	TYPE: 8710	PORTABLE EQUIPMENT	E1200
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The adjustment of this lamp house is identical to the adjustment described under F8.

- c. The construction is as discussed in this documentation. A mirror which transmits heat has been placed in the lamp house.

#### I. Modifications for FP3

The portable installation can be made suitable in the following way to serve as stationary FP3 installation. The tripod is therefore replaced by a firm base, suitable, if necessary, for slide projection. See documentation N701 for this. See for the installation instructions the documentation N 403.

#### J. Maintenance

##### 1. Cleaning

- a. After each reel the skate and the film track have to be cleaned. Of a film track with velvet, the velvet has to be properly brushed.

After each performance all parts which have been in touch with the film should be cleaned. If the film deposit releases with difficulty, this can be removed with a piece of wood. Never use a metal object. This would damage the smooth surface.

- b. Projection lens.  
Touch the lens surfaces as little as possible with the fingers. Remove dirt and grease from the surface with a soft cloth. Use a little alcohol if necessary.
- c. Photo electric cell and exciter lamp.  
Wipe the finger-prints off with a soft cloth.
- d. Glass bar and lens of slit optic.  
Clean this with a soft chamois leather. Never touch the flat end of the bar with the fingers.

##### 2. Greasing

- a. Maltese cross.  
The graphite oil in the mechanism should be replaced every 50 working hours. The contents are 12 cc. The oil level should stand at the red dot on the glass. Graphite oil EL 4800.
- b. After each performance grease the rollers, the hinge points and the outer bearing of the shaft for intermittent movement with Esso handy oil (C1 602 17). Wipe excessive oil off with a cloth.
- c. Take off friction.  
Turn the grease pot half a turn after each performance. Fill with consistent grease EL 4851.



# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8710

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
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1200

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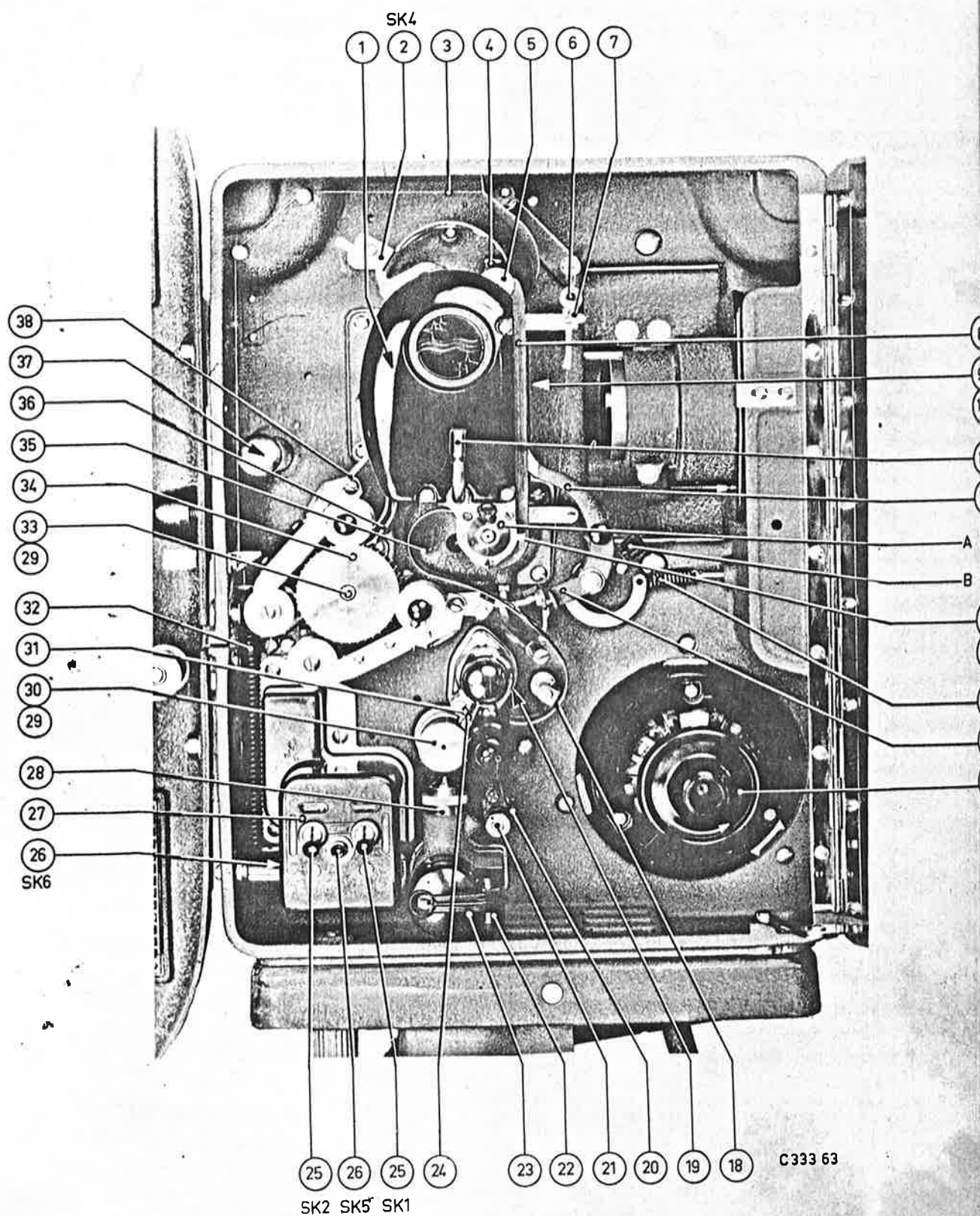


Fig.1

<b>PHILIPS</b> SERVICE CINEMA EINDHOVEN	TYPE: 8710	PORTABLE EQUIPMENT	E1200	
			2-11-59	7-17
			<del>1-11-51</del>	

1	Mirror	22 440 65
2	Lever	22 542 18
3	Cable, complete	01 702 74
4	Leaf spring	22 542 56
5	Side pressure roller	22 542 54
6	Eyelet	22 544 65.2
7	Wire loop	01 702 75
8	Skate, complete	01 700 71
9	Film track	22 544 69.2
	Film track with velvet	22 440 80.3
10	Mask, normal	01 608 92
	Mask, c.s.	01 608 94
	Mask w.s. 1 : 1.85	01 608 96
11	Cap	22 540 69
12	Lever	22 519 84.2
13	Sprocket + fixing material	01 904 29
14	Sealing ring on sprocket	89 038 05
15	Tension spring	22 519 92
16	Fork	22 519 85.1
17	Knob	23 705 15.1
18	Rail	22 519 94
19	Photo electric cell holder	22 518 70.1
20	Ring	22 414 99
21	Torsion spring	22 413 25
22	Housing of exciter lamp	22 469 60
23	Cover	22 469 70
24	Glass bar	22 542 61.1
25	Tumbler switch	970/3x250
26	Pressure switch	08 520 25
27	Cam	23 705 17.2
28	Slit optic, complete	22 440 50
29	Ball-bearing	89 225 14.1
30	Capstan	22 519 71
31	Leaf spring	22 518 69
32	Tension spring	22 542 59.2
33	Sprocket shaft	22 541 75.1
34	Sprocket	01 310 94
35	Maltese cross mechanism	22 508 95.2
36	Rail, complete	22 519 94
37	Lamp holder	976/S1x9
38	Track of pad roller, complete	22 519 28

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8710

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

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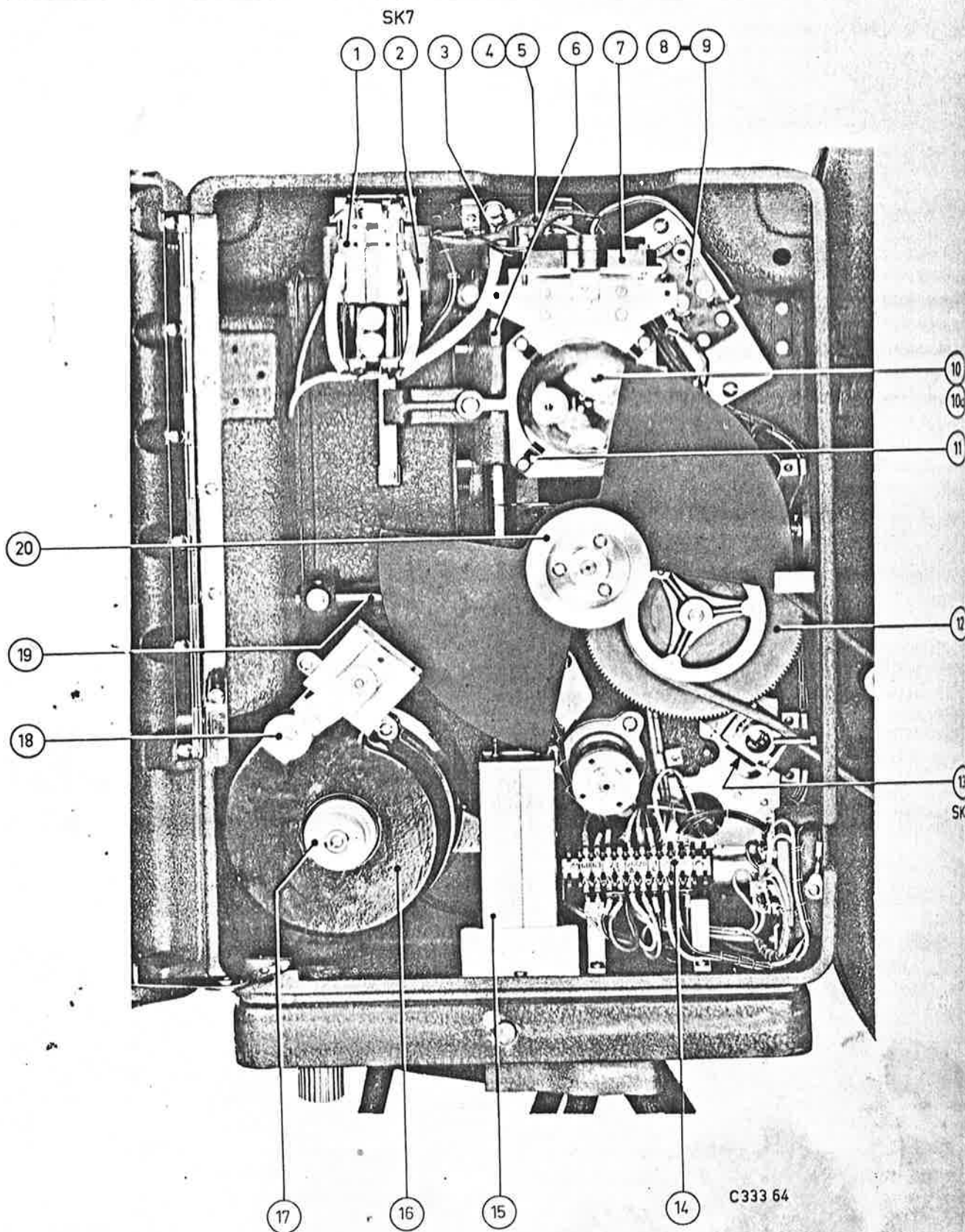


Fig.2

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8710

PORTABLE EQUIPMENT

E1200

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9-17

1	Carbon contact	ND 964 91
	Wolfram contact with spring	ND 909 00
2	Relay	ND 996 30.9
3	Tension spring	22 540 91
4	Lever	22 541 07
5	Spring	22 541 08
6	Toothed bracket	22 519 49
7	Lamp fitting	23 705 37.2
8	Support with contact springs	22 541 48.3
9	Contacts	ND 961 91
10	Condensor lens, convex	22 450 86
10a	Condensor lens, flat	22 541 00
11	Leaf spring	22 540 95
12	Toothed wheel	C1 541 76
13	Ball-bearing	89 225 14
14	Connecting block	967/T14
15	Capacitor 10 $\mu$ F	903/E10M
16	Motor with ventilator	22 541 27.4
17	Pulley	22 545 98.3
18	Roller	C1 700 78.1
19	Shaft with knob	23 668 89.1
20	Pulley	22 546 00



# PHILIPS

SERVICE CINEMA EINDHOVEN

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PORTABLE EQUIPMENT

E1200

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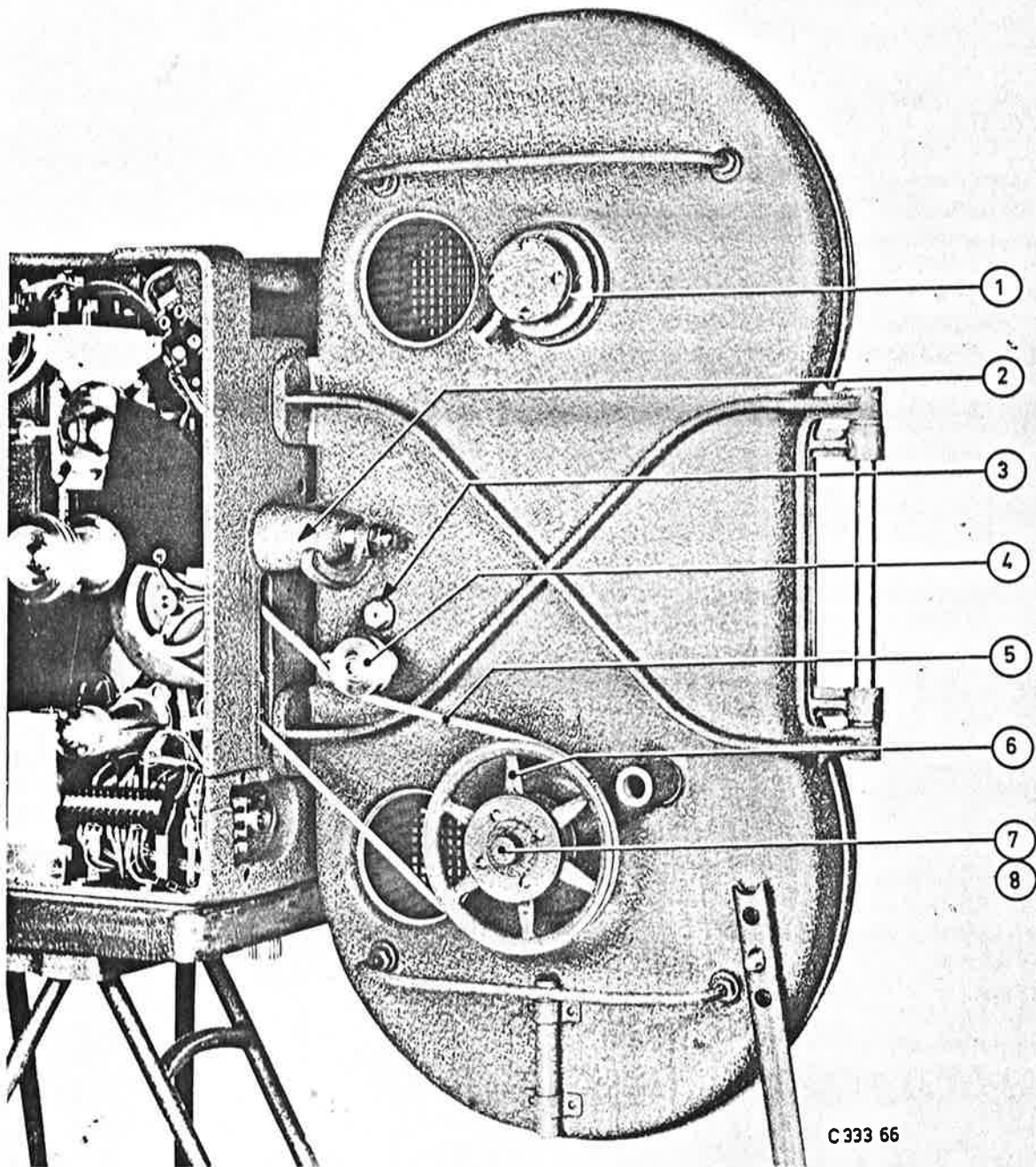
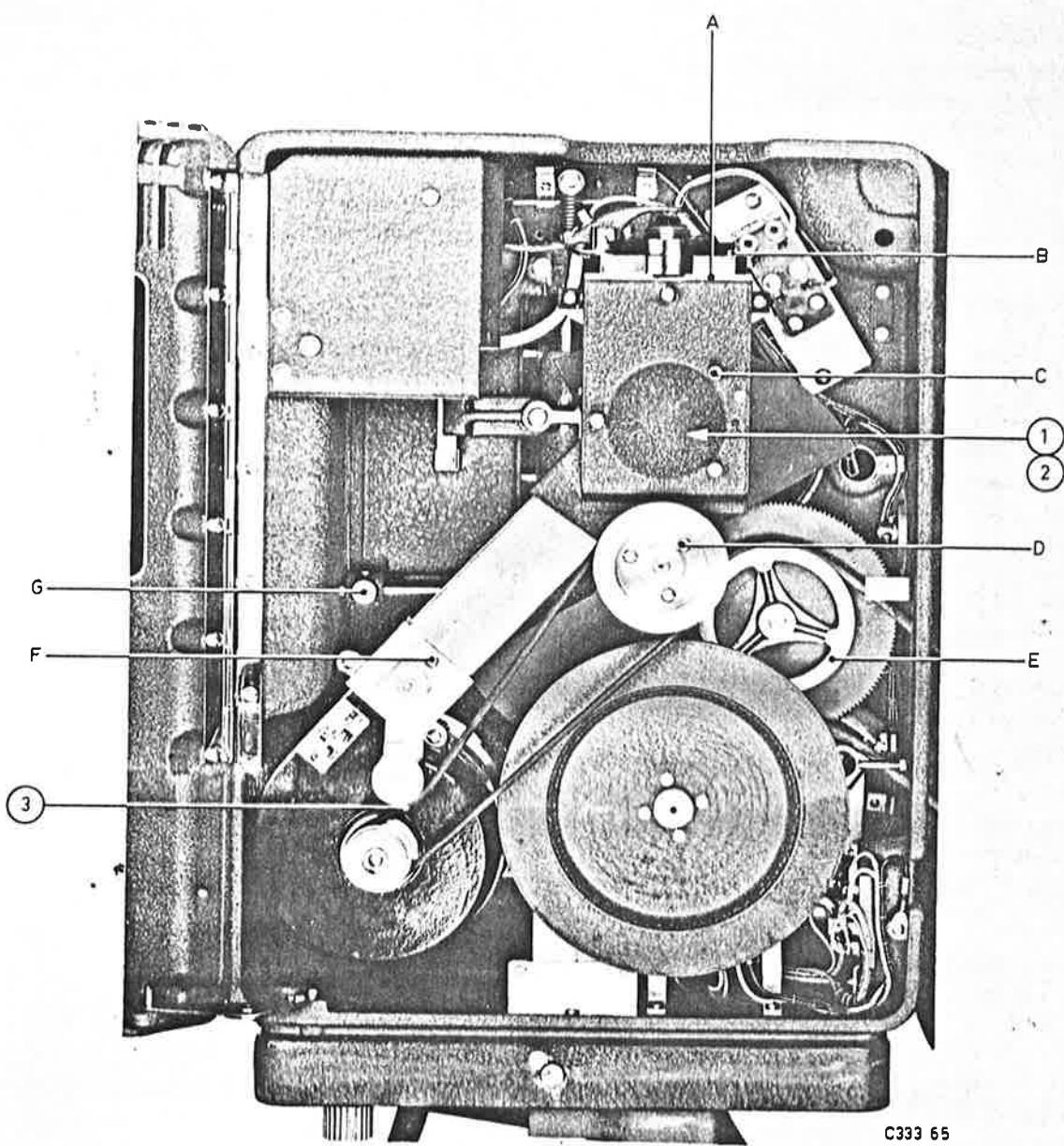


Fig.3

1	Spool shaft	C1 703 28
2	Pressure spring	22 542 74
3	Koller	22 519 27.1
4	Koller r	01 602 35
5	Belt	22 544 55.1
6	Pulley	01 610 15
7	Spool shaft	22 541 54
8	Ball-bearing	89 181 04
Friction complete		C1 607 73





C333 65

Fig.4

- |   |             |           |
|---|-------------|-----------|
| 1 | Mirror      | 01.610 36 |
| 2 | Leaf spring | 22.541 18 |
| 3 | Belt        | 22.542 92 |

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8710

PORTABLE EQUIPMENT

E1200

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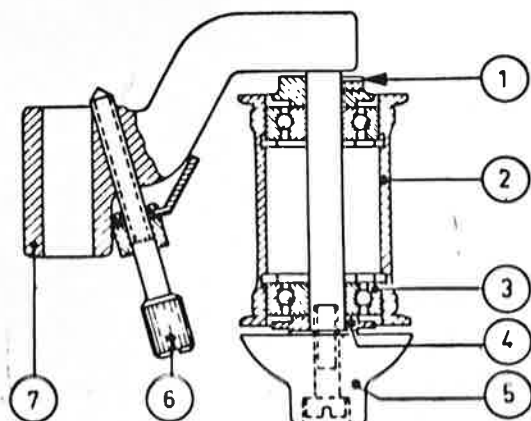


Fig. 5

1	Ring	22 459 59
2	Roller	22 443 11
3	Ball-bearing	89 180 99
4	Ring	22 459 43
5	Cap	01 317 57
6	Adjusting screw	22 439 10
7	Lever	01 602 30

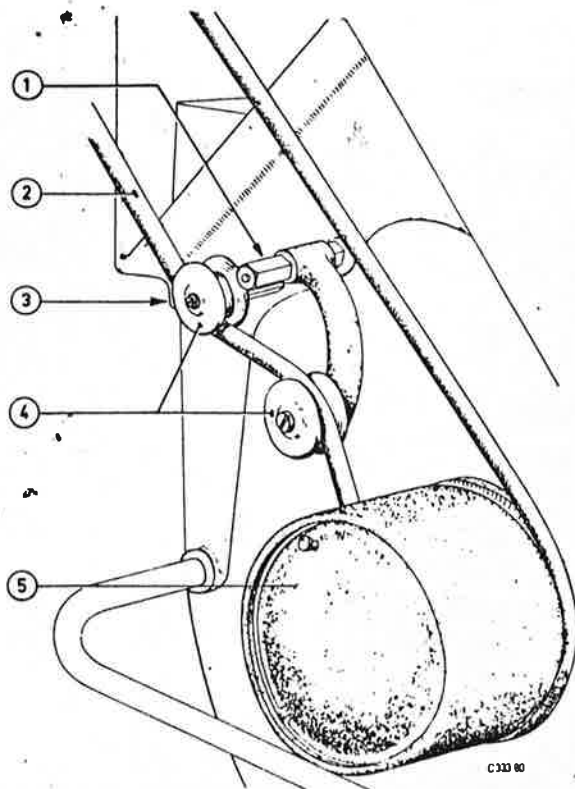


Fig. 7

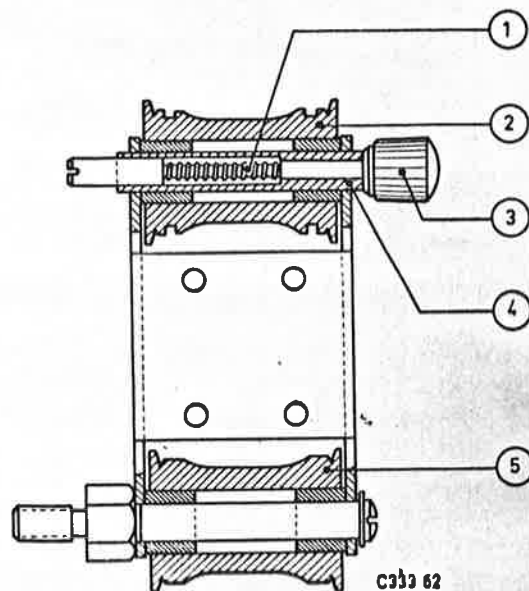


Fig. 6

1	Pressure spring	22 519 21
2	Roller	22 519 22.1
3	Cap nut	P4 004 06/01AA
4	Bush	22 519 23
5	Roller	22 519 27.1

1	Torsion spring	22 547 74
2	Belt 1200 m spool box	01 700 10
	Belt 1800 m spool box	01 700 09
3	Shaft	22 547 75
4	Roller	22 547 67
5	Friction disc	01 603 77

1	Spool shaft	01 703 28
2	Roller	01 700 15
3	Pressure spring	22 542 74
4	Roller	01 700 13
5	Roller	01 700 14
6	Ball-bearing	89 181 07
7	Spring	22 542 27.1
8	Bolt	22 542 25
9	Bolt holder	22 542 26

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8710

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

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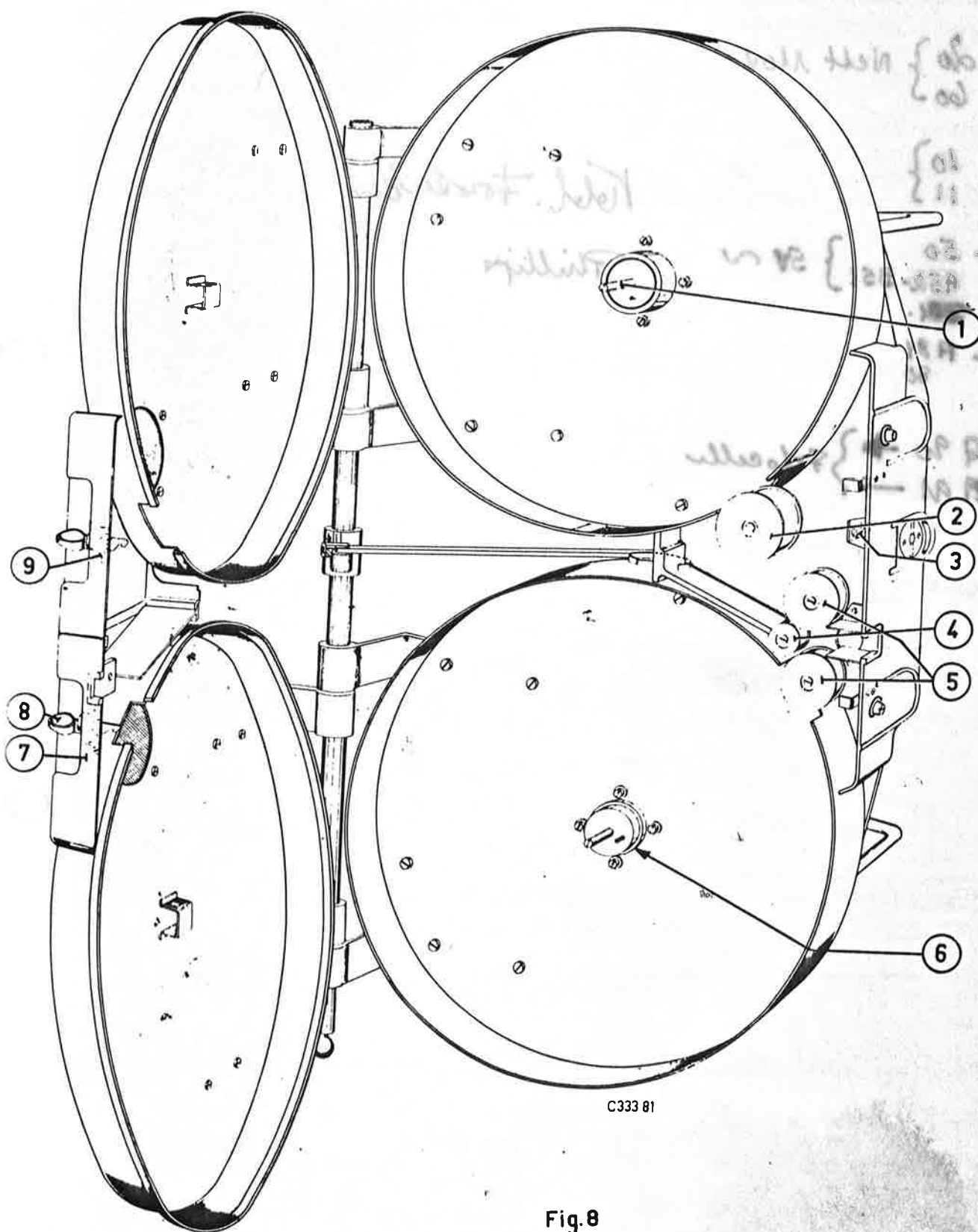


Fig. 8

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8710

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

1200

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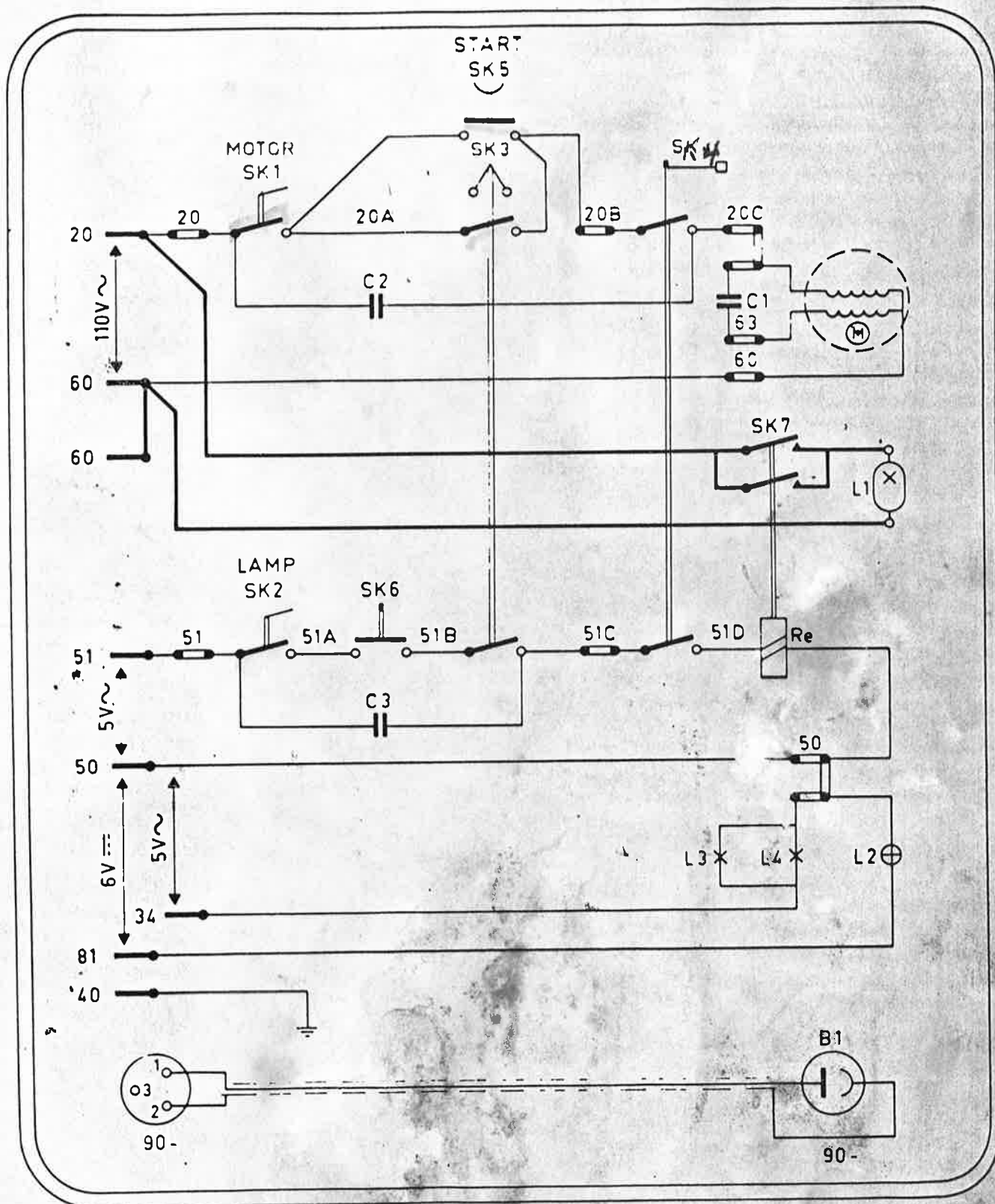


Fig. 9

# PHILIPS

SERVICE CINEMA EINDHOVEN

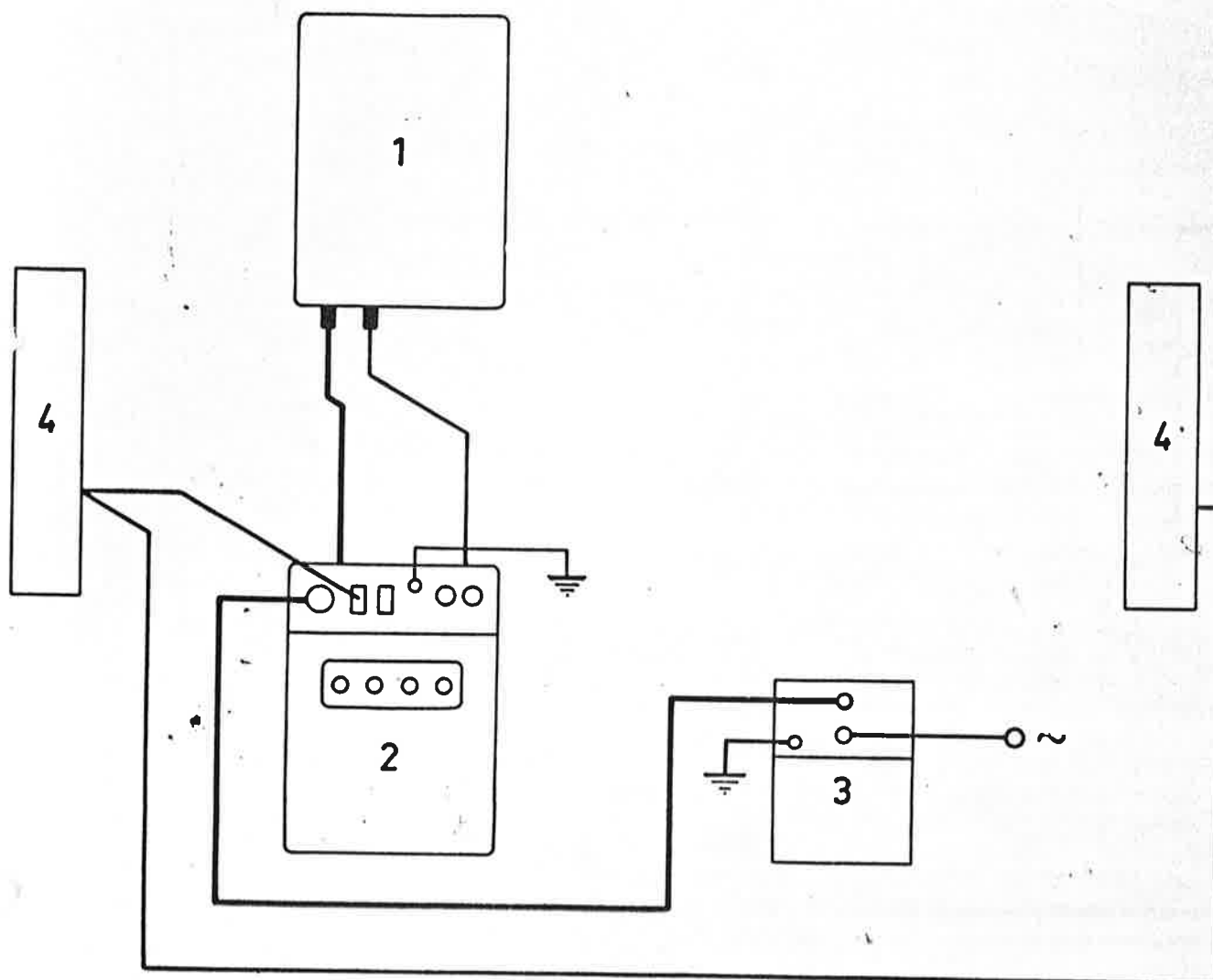
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DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

1200

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15-17



C 333 78

1 projector  
2 versterker  
3 trafo  
4 luidspreker

projector  
amplifier  
transformer  
loudspeaker

projecteur  
amplificateur  
transformateur  
haut-parleur

proyector  
amplificador  
transformador  
altavoz



# PHILIPS

SERVICE CINEMA EINDHOVEN

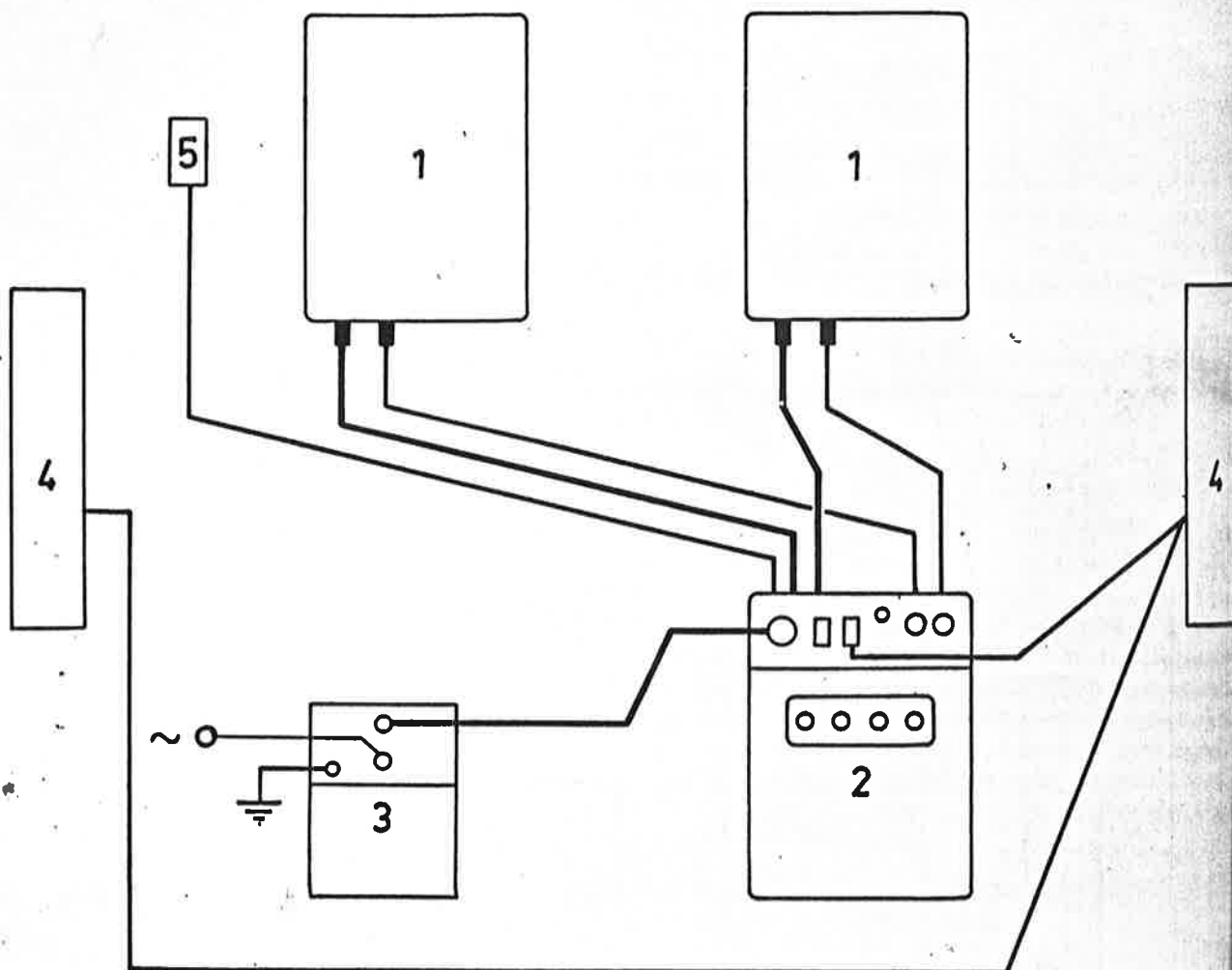
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DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

1200

2-11-59

1-11-59



C 333 79

1 projector  
2 versterker  
3 trafo  
4 luidspreker  
5 schakelaar

projector  
amplifier  
transformer  
loudspeaker  
switch

projecteur  
amplificateur  
transformateur  
haut-parleur  
interrupteur

proyector  
amplificador  
transformador  
altavoz  
interruptor

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8710

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

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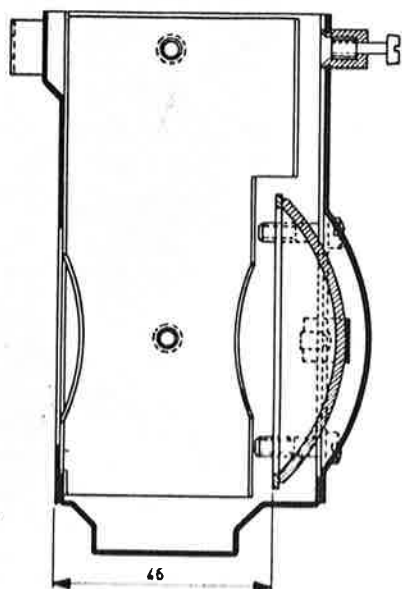


Fig.12

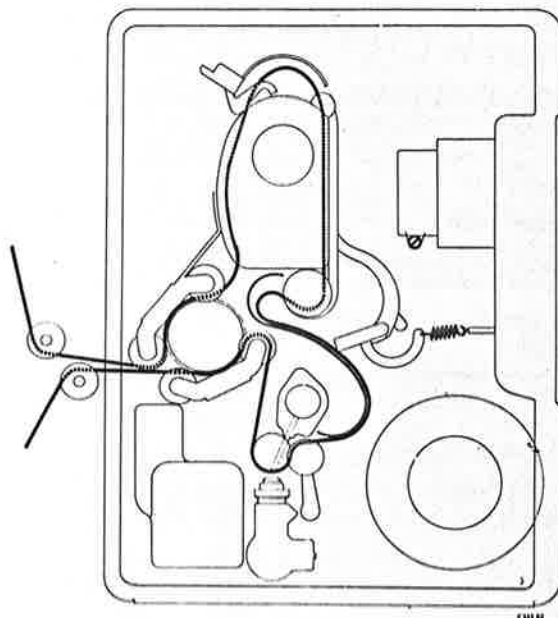


Fig.13

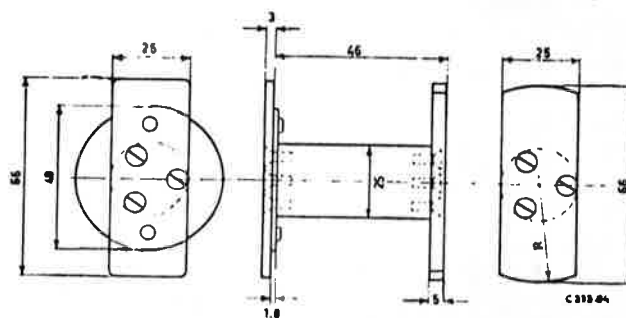


Fig.14

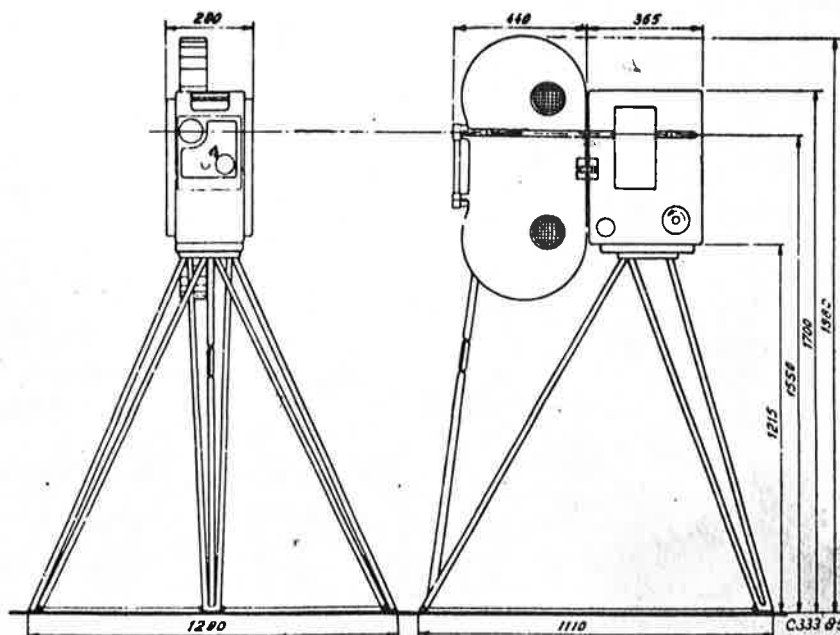
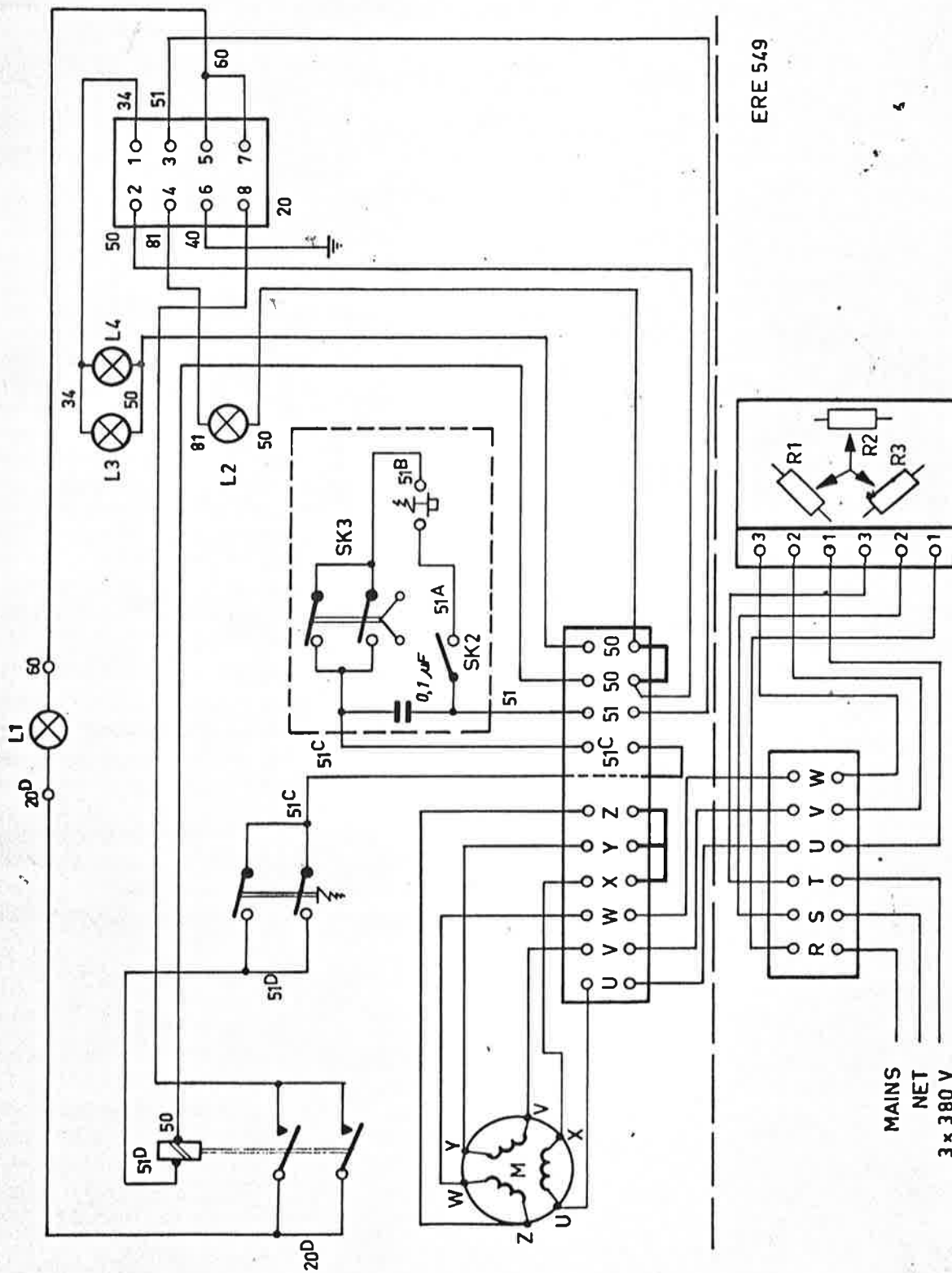


Fig.15



ERE 549

Fig. A

CS10289

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

2776-00

PORTABLE EQUIPMENT

E1200

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C  
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The universal supply unit type 2776/00 enables the 8730 installation to be connected to mains ranging in voltage from 103 to 257 V, 40, 50 or 60 cycles. Adjustment is made by inserting a screw plug "5" into the socket on the front panel corresponding to the local mains voltage. On the rear panel are located the various connection sockets, viz:

the mains input socket,  
two 110 V female sockets for connection to the amplifier type 2883 and the gramophone unit,  
an 8 pole socket for connection to the projector.

The voltages available at this socket are:  
110 V A.C. for the motor and projection lamp, 5 V A.C. for the exciter lamp, relay, framing and pilot lamps.

In cases where the mains voltage is a little too high or too low, the 110 V for motor and projection lamp can be lowered or raised by means of the rotary switch SK1 located on the front panel. N is the normal position of this switch; when turned to + position the voltage for motor and projection lamp only is increased by approximately 5 V and when in the - position, the voltage is decreased by approximately 5 V.

The circuit diagram is shown in fig. 24c with SK1 in the N position. The numbers 1 to 3 and 5 to 8 represent the connection points of the 8 pole socket. Point 4 is left floating, this being joined internally to points 1 and 3 in the projector connecting cable. T1 is an auto transformer with a separate 5 V winding (S11) for the exciter

lamp, etc. Assuming the apparatus is to be used on 220 V mains and the screw plug is inserted in the "220" socket the mains current then flows from the upper ~ point through VL1, S1, S2, S3, S4, S5, S6, through the 220 socket bridged by the screw plug to S8, S9, S10 and so to the lower ~ point. The 110 V for the amplifier and gramophone is taken from S1, S2 and S3. With SK1 in the N position the circuit is from points 5, 7, S1, S2, S3, SK1a to point 8. When SK1 is turned 90° clockwise, i.e. to the + position, SK1a is opened and SK1b joins point 8 to S4, thereby increasing the voltage between points 5, 7 and 8. With SK1 in the - position (90° counter clockwise) SK1b is opened and SK1a connects point 8 to S2 and the voltage is lowered accordingly.

For details of connecting cables, see section E, pages 1 and 2.

#### REPLACEMENT PARTS

Fig.	Item	Description	Code number
22c	1	Female socket	S1 571 38.0
22c	2	8-pole socket	E3 008 23.0
23c	3	Mains transformer	E3 208 55.0
23c	4	Temp. fuse	08 100 97.0
23c	5	Screw plug	23 719 86.0
23c	6	Knob	23 722 58.0
23c	7	Rotary switch	E2 570 14.0

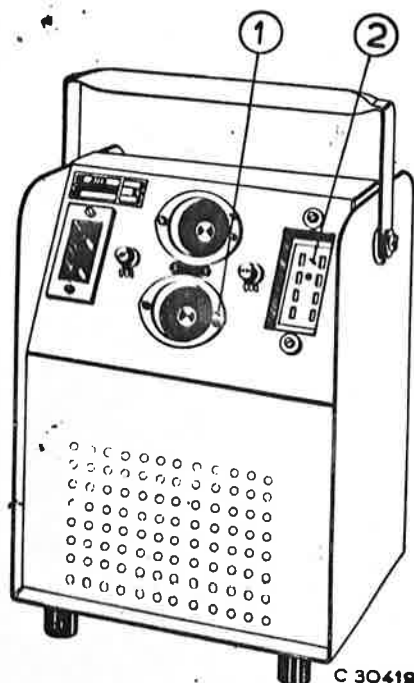


Fig. 22C

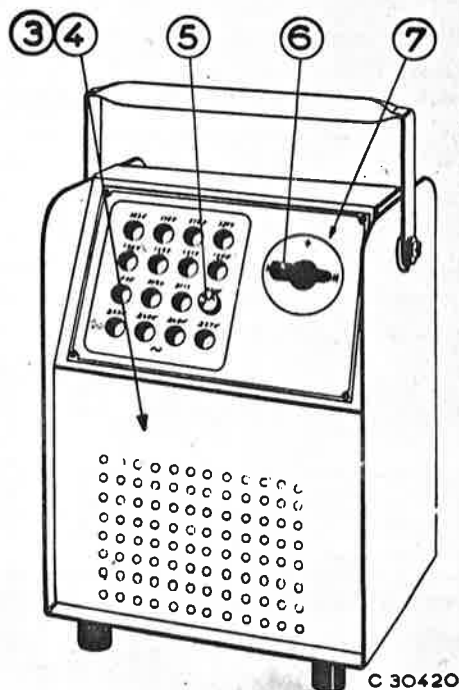


Fig. 23C

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

2776-00

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

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C 15

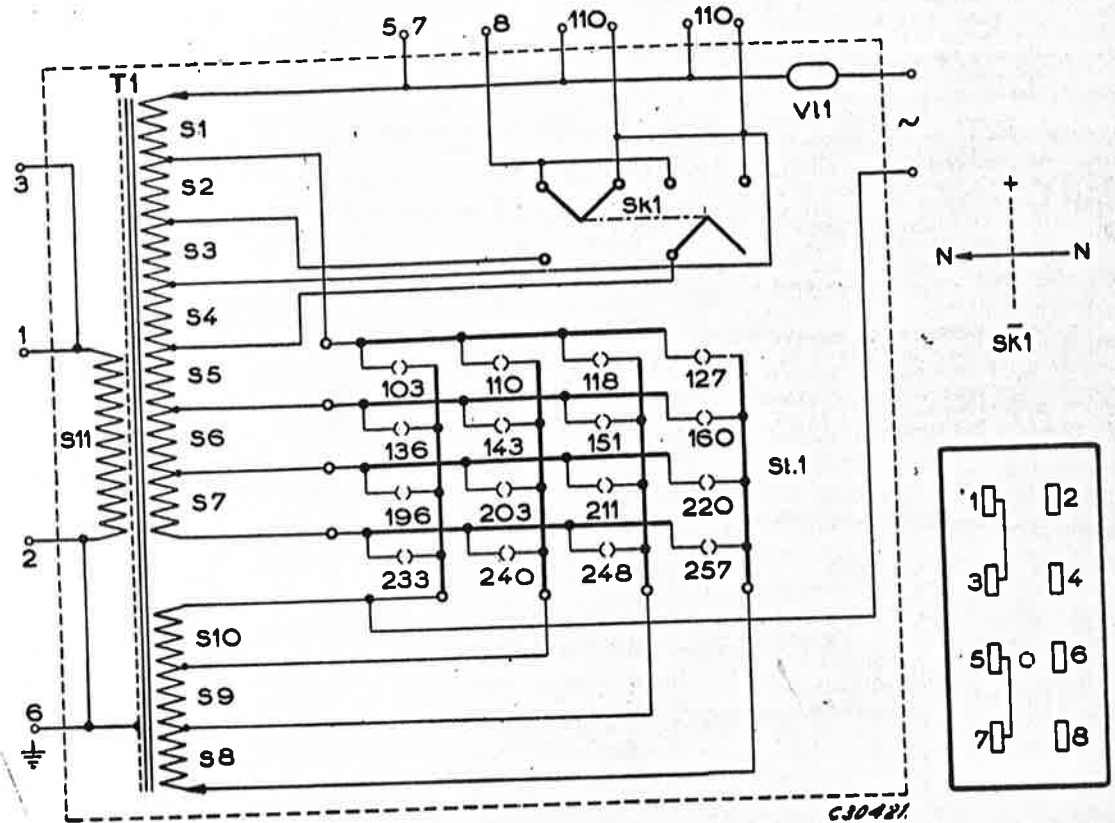


Fig.24 C

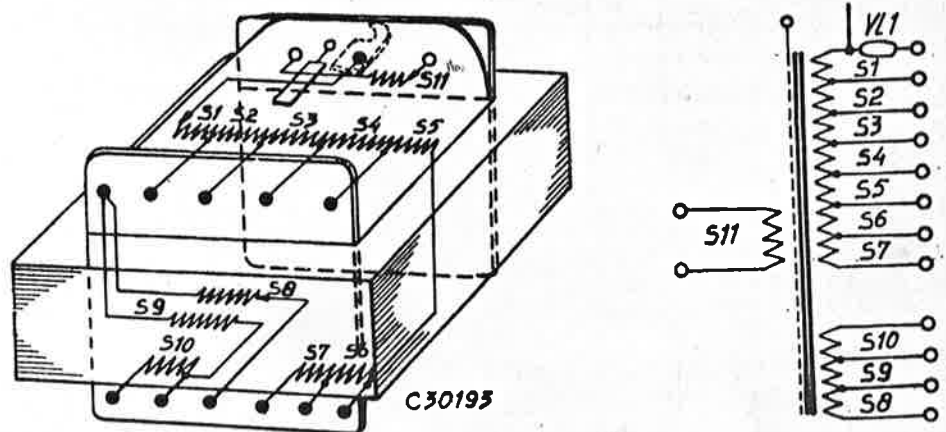


Fig.25 C



# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

AMPLIFIER 2720

PORTABLE EQUIPMENT

E1200

1-2-52

D  
1-12

## A. GENERAL

20 Watt amplifier with built-in record player.

Mains voltage : 260 V

Mains frequency : 50 c/s

Power consumption: 125 W approx. (motor off)  
137 W approx. (motor on)Input sensitivity : Photocell 1.3 mV  $\pm$  20%  
Microphone 38 mV  $\pm$  20%Input resistance : Photocell 55,000  $\Omega$   
Microphone 250,000  $\Omega$ 

Output voltage : 100 V

Harmonic distortion : 1.6% at 1000 c/s (20 W output)

Hum and Noise : better than -60 db

Valve complement:

B1 : 6F40 Pre-amplifier  
B2 : 6F40 Voltage amplifier  
B3 : 6AF42 Voltage amplifier  
B4 : 6AF42 Phase inverter  
B5-8 : 6U41 Power amplifiers  
B9-12 : 6U41 Rectifiers

## CIRCUIT DESCRIPTION (see fig. 6D)

The signal from the photocell passes via C1 (or C2), the filter C8-H11 and H62 to the control grid of B1 which functions as photocell pre-amplifier. The anode voltages for the photocells are taken from the potentiometers R2 and R3. The networks H7-R8/C3-C5 and R9-R10/C4-C6 serve as extra smoothing filters for the photocell voltages, and furthermore lift the response of the pre-amplifier at low frequencies. The parallel connection of H16-C10 in the anode of B1 boosts the high frequencies. H4-C12-C13 constitute the bass control (designated B on the amplifier control panel), H5 is the film volume control (F) and H6-C17 the treble control (H). Since the photo cell signal is given considerable treble boost in the pre-amplifier circuit, the treble control (H) can be used to reduce the high note amplification and thus flatten the overall response curve. It can be seen from the circuit diagram that both pick-up and microphone signals do not receive the same treble lift as the photocell signal and therefore to obtain a flat response for microphones or pick-up the treble control should be turned to the maximum position.

The signal levels from microphone and pick-up are controlled by the centre-tapped potentiometer R1; R56-R57-H59-C33 lift the response of the pick-up at the low frequencies.

B4 functions as phase-inverter, the signals necessary to drive the output stage being taken from the anode and cathode respectively.

The output stage consists of four 6U41's B5, B6, B7, B8 operating in push-pull parallel. From the secondary winding S3 of the output transformer T2, a frequency-dependent feedback voltage is applied via C18/R26 to the cathode circuit of B3.

In the power supply section, four 6U41's connected in parallel rectify the 260 V a.c. supply and furnish the high tension for the entire amplifier. Adequate filtering is provided by the dual electrolytic capacitors C30 and C31. One section of C30 and one section of C31 are connected to the output of the rectifiers, the remaining sections being connected to the other side of the smoothing choke L1. This is done to distribute the ripple current equally between C30 and C31.

The heaters of B1 and B2 are fed from the heater transformer T1, while the heaters of all other valves are connected in two parallel chains through the resistors R2, R53, R60 and R61 to the 260 V a.c. supply. Since one side of this supply is connected to chassis, the amplifier should never be connected directly to 260 V mains (e.g. for testing purposes) but should always be connected to the universal mains transformer type 2778, or a suitable 1:1 isolating transformer.

## Voltage and current measurements.

Valve	Va	Ia	Vg2	Ig2	-Vg
B1	81-99	1.5-1.8	88-108	0.3-0.36	1.4-1.7
B2	88-108	0.7-0.8	82-100	0.1-0.16	1.8-2.1
B3	80-95	1.5-1.8	63-77	0.5-0.6	3-3.5
B4	40-50	0.7-0.8	40-50	0.2-0.3	2.3-2.7
B5, B6 B7, B8	245-255	28-48	235-245	5-9	17.5-19.5
	Volts	mA	Volts	mA	Volts

Heater voltage : B1, B2 = 6.15 - 6.45 V.

Heater current : B3, B5, B6, B9, B10 = 95-105 mA  
B4, B7, B8, B11, B12 = 95-105 mA

Voltage La1 and La2 = 5.0 - 5.8 V

These readings were taken with the amplifier connected to 260 V, a.c., motor switched off, using a 10,000  $\Omega$ /V meter, tolerance  $\pm$  10%.

## Photo-cell anode voltages

R2 and R3 at minimum : 60 - 70 V

R2 and R3 at maximum : 95 - 99 V,

measured with electrostatic voltmeter

## G. ADJUSTMENTS

Adjustments to the gramophone unit are simple and few viz:

1. Speed regulation
2. Switching on mechanism
3. Automatic switching off mechanism

1. The unit leaves the factory with the speed regulator correctly adjusted for 50 c/s mains. If used on 60 c/s mains, the speed will have to be altered slightly to ensure that the turntable revolves at 78 r.p.m. This can be done as follows: Remove the turntable, loosen screw A (see fig. 2D) and turn the shaft B with a screwdriver in a counter-clockwise direction.

Leave the speed regulator lever loose on shaft B, put back the turntable and play a record, at the same time checking the speed with a 60 c/s stroboscopic disc. If the speed does not correspond to 78 r.p.m. turn the shaft B slightly in the desired direction (clockwise for faster speeds and vice versa). When the correct adjustment has been reached, move the speed regulator lever to the "78" mark and tighten up screw A.

2. The switching on mechanism can be adjusted by loosening screw 6 (fig. 2D) and turning the eccentric washer under this screw.

3. If the mechanism fails to switch off at the end of a record, it is probably due to insufficient friction between the lever C and plate D. The friction can be increased by turning screw 17 in a clockwise direction. The friction should be just sufficient to cause lever C to move towards the main driving spindle only when the pick-up makes its rapid run-in towards the centre, at the end of the record. Too much friction will result in the motor switching off before a record is finished.

## FREQUENCY RESPONSE MEASUREMENTS

The response of the amplifier can be checked as follows:

Photocell input: Connect the measuring instruments as shown in fig. 7D, T.G. being an audio-frequency oscillator such as QM 2307 or QM 2315 and R a 500  $\Omega$  non-inductive resistor.

The response should first be measured from both photocell inputs with the bass and treble controls (B and H respectively) in the middle position ("flat" response). Having done this, it will suffice to measure the response from photocell input 1 for the maximum and minimum settings of the bass and treble controls.

<b>PHILIPS</b> SERVICE CINEMA EINDHOVEN	TYPE: 8730  AMPLIFIER 2720	PORTABLE EQUIPMENT	E1200	
			1-2-52	D 2-12

Input	1 or 2 "flat"	B min.	B max.	H min.	H max.
30 o/s	19.8	6.7 (a)	48	-	-
60 o/s	20.6	9.3	49	-	-
120 o/s	19.8	14.5	44 (b)	-	-
250 o/s	19.8	19.8	37	20.1	20.6
500 o/s	21.2	22	31	22.2	24
1000 o/s	20	20.6	24	22	29.4
2000 o/s	17.6	-	20	18.5	36.6
4000 o/s	17.5	-	18.5	14	48.7
6000 o/s	18.3	-	-	11.3	60
8000 o/s	19.4	-	-	9.3	68.5
10000 o/s	20	-	-	7.7 (c)	73 (d)
frequency	Vo	Vo	Vo	Vo	Vo

$V_i = 3.0 - 4.5 \text{ mV}$

Permissible tolerances of  $V_o$  :

- a) from 8 to 5 Volts
- b) from 40 to 60 Volts
- c) from 9.5 to 6 Volts
- d) from 56 to 90 Volts

Microphone or P.U. input : Connect measuring instruments as shown in fig. 8D feeding the signal from T.O. first into the microphone and later into the P.U. input via a 12,000 carbon resistor.

Input	"flat" H max.	H min.	P.U. "flat" H max.
30 o/s	-	-	48 (e)
60 o/s	4.6	-	37
120 o/s	9.5 (f)	-	26.5
250 o/s	18.5	18.5	22
500 o/s	34	31.5	20
1000 o/s	50	39	20
2000 o/s	60	30	19.6
4000 o/s	63	17.5	19
6000 o/s	62	12	18.2
8000 o/s	61	9	17.2
10000 o/s	60 (g)	7.5 (h)	15.1 (i)
frequency	Vo	Vo	Vo

- $V_i$  for microphone : 13.5 - 20.5 mV
- $V_i$  for P.U. : 32 - 48 mV

Permissible tolerances of  $V_o$  :

- e) 40-60 V
- f) 6-10 V
- g) 45-70 V
- h) 5-12.5 V
- i) 13-20 V

#### N.B.

During these tests, only the volume control on the input channel concerned should be turned to maximum.

#### Overall frequency response

Before measuring the frequency response on film, adjust the filters for the best straight response, beginning with B on 8 and H on 6. Adjust the input so that at 1000 o/s 20 V output is obtained. Note the input voltage  $V_i$ , then feed a 30 o/s signal and adjust knob B for an output of 19.5 V, after which a frequency of 10,000 o/s is fed to the amplifier and knob H is adjusted to give an output of 21.5 V.

#### S. REPAIRS AND REPLACEMENT OF PARTS

##### Removing the chassis

1. Remove the three screws holding the bottom plate and remove the latter.
2. Unscrew the philite screw and remove the back screen.
3. Unsolder the two wires in the front left-hand corner from the panel lamp holder.
4. Stand the amplifier on its back and remove the ten chassis-fixing screws (located along the edges of the chassis).
5. Carefully turn the amplifier right side up and lift the case off the chassis.

##### Removing the gramophone unit

1. Take the chassis out of the case.
2. Remove the turntable.
3. Unsolder the pick-up lead and the grey earth lead from the motor; remove the cover from the motor terminal block and disconnect the two motor leads.
4. Loosen the speed indicator plate and lift the speed regulator lever free.
5. Unscrew the three screws fixing the gramophone unit to the chassis and lift the unit out.

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

AMPLIFIER 2720

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## W. LIST OF REPLACEMENT PARTS

Fig	Item	Description	Codenumber
		Panel lamp holder	V3 565 01.0
		Matt glass strip	B2 352 01.0
		Rubber grommet	49 212 00.0
		Control panel test plate	B3 054 45.0
		Rubber foot	25 985 17.0
		Pick-up vent (complete)	A9 865 00.0
1D	1	Needle container	M1 962 04.0
1D	2	Tag block	B2 544 21.0
1D	3	Valve socket (B1 to B12)	B1 505 72.0
2D	4	P.U. arm	A9 020 62.0
2D	5	P.U. base	A9 020 71.0
2D	6	Adjusting screw	A9 020 69.0
2D	7	Cover for switch block	A9 020 67.0
2D	8	Spring	A9 005 84.0
2D	9	Switch block	A9 020 70.0
2D	10	Screw for regulating lever	A9 020 69.0
2D	11	Rubber sleeve	A9 008 68.0
2D	12	Spring	A9 006 94.0
2D	13	Screw for striker	A9 020 72.0
2D	14	Rubber washer	A9 008 71.0
2D	15	Rubber sleeve (motor mounting)	A9 008 70.0
2D	16	Adjusting screw	A9 006 95.0
2D	17	Friction spring	A9 005 79.0
2D	18	Friction washer	A9 008 66.0
2D	19	Spring clip	A9 008 67.0
3D	20	Felt for turntable	A9 020 74.0
3D	21	Main spindle with gear wheel	A9 008 76.0
3D	22	Governor spring	A9 008 72.0
3D	23	Bearing	A9 008 80.0
3D	24	Fibre gear wheel	A9 008 81.0
3D	25	Cover for connection block	A9 007 14.0
3D	26	Connection block	A9 007 13.0
3D	27	Stator pack	A9 008 78.0
3D	28	Spring for speed regulator	A9 008 75.0
4D	29	Screw, fixing adjusting plate	A9 007 73.0
4D	30	Damping rubber (top)	A9 007 77.0
4D	31	P.U. unit	A9 007 83.0
4D	32	P.U. coil, 2000 $\Omega$	A9 007 84.0
4D	33	Screw, fixing needle	A9 006 32.0
4D	34	Screw, fixing pole piece	A9 007 74.0
4D	35	Damping rubber bottom	A9 007 71.0
4D	36	Screw, fixing unit into head	A9 007 70.0
4D	37	Base plate assembly	A9 007 75.0

## CONDENSERS

No	Value	Codenumber
01	0,1 $\mu F$	48 791 10/100K
02	0,1 $\mu F$	48 791 10/100K
03	10000 pF	48 751 20/10K
04	10000 pF	48 751 20/10K
05	0,47 $\mu F$	48 791 10/470K
06	0,47 $\mu F$	48 791 10/470K
07	100 $\mu F$	48 313 22/100
08	120 pF	48 601 10/120K
09	0,33 $\mu F$	48 751 20/330K
010	560 pF	48 601 10/560K
011	0,22 $\mu F$	48 791 10/220K
012	1500 pF	48 751 20/1K5
013	0,22 $\mu F$	48 750 20/220K
014	100 $\mu F$	48 313 22/100
015	0,33 $\mu F$	48 751 20/330K
016	22000 pF	48 791 10/22K
017	1000 pF	48 601 10/1K
018	1500 pF	48 751 20/1K5
019	100 $\mu F$	48 313 22/100
020	0,22 $\mu F$	48 751 20/220K
021	100 pF	48 601 10/100K
022	4700 pF	48 798 20/47K
023	0,1 $\mu F$	48 791 10/100K
024	0,1 $\mu F$	48 791 10/100K
025	250 + 250 $\mu F$	48 317 04/250+250
026		
027	0,47 $\mu F$	48 751 20/470K
028		
029	50 + 50 $\mu F$	48 317 09/50+50
030	50 + 50 $\mu F$	48 317 09/50+50
031	50 + 50 $\mu F$	48 317 09/50+50
032	47000 pF	48 757 20/47K
033	47000 pF	48 750 20/47K
034	600 pF	48 601 10/600K
035	12 $\mu F$ + 12 $\mu F$	48 317 09/12+12

## RESISTORS

No	Value	Codenumber
R1	0,5 + 0,5 M $\Omega$	49 501 43.0
R2	0,35 M $\Omega$	49 501 21.0
R3	0,35 M $\Omega$	49 501 41.0
R4	4,5 M $\Omega$	49 474 47.0
R5	0,1 M $\Omega$	V3 635 01.0
R6	4,5 M $\Omega$	49 501 43.0
R7	0,15 M $\Omega$	48 553 10/150K
R8	0,15 M $\Omega$	48 427 10/150K
R9	0,15 M $\Omega$	48 553 10/150K
R10	0,15 M $\Omega$	48 427 10/150K
R11	0,22 M $\Omega$	48 427 10/220K
R12	820 $\Omega$	48 552 10/820K
R13	0,27 M $\Omega$	48 427 10/270K
R14	0,39 M $\Omega$	48 426 10/390K
R15	82000 $\Omega$	48 553 05/82K
R16	0,15 M $\Omega$	48 426 10/150K
R17	10 M $\Omega$	48 427 10/10M
R18	0,18 M $\Omega$	48 426 10/180K
R19	0,22 M $\Omega$	48 426 10/220K
R20	2200 $\Omega$	48 426 10/2K2
R21	1 M $\Omega$	48 426 10/1M
R22	0,18 M $\Omega$	48 553 10/180K
R23	1 M $\Omega$	48 426 10/1M
R24	1500 $\Omega$	48 426 10/1K5
R25	47 $\Omega$	48 426 10/47K
R26	1200 $\Omega$	48 426 10/1K2
R27	0,33 M $\Omega$	48 552 10/330K
R28	0,1 M $\Omega$	48 427 10/100K
R29	1 M $\Omega$	48 426 10/1M
R30	2700 $\Omega$	48 426 10/2K7
R31	0,1 M $\Omega$	48 552 10/100K
R32	0,1 M $\Omega$	48 552 10/100K
R33	0,47 M $\Omega$	48 426 10/470K
R34	0,47 M $\Omega$	48 426 10/470K
R35	8200 $\Omega$	48 425 10/8K2
R36	8200 $\Omega$	48 425 10/8K2
R37	8200 $\Omega$	48 425 10/8K2
R38	8200 $\Omega$	48 425 10/8K2
R39	110 $\Omega$	48 767 05/110K
R40	1200 $\Omega$	48 427 10/1K2
R41	1200 $\Omega$	48 427 10/1K2
R42	0,82 M $\Omega$	48 426 10/820K
R43	0,82 M $\Omega$	48 426 10/820K
R44	0,33 M $\Omega$	48 552 10/330K
R45	0,68 M $\Omega$	48 426 10/680K
R46	3900 $\Omega$	48 427 10/3K9
R47	3900 $\Omega$	48 427 10/3K9
R48	200 $\Omega$	48 494 05/200K
R49	200 $\Omega$	48 494 05/200K
R50	200 $\Omega$	48 494 05/200K
R51	200 $\Omega$	48 494 05/200K
R52	900 $\Omega$	48 496 05/900K
R53	900 $\Omega$	48 496 05/900K
R54	560 $\Omega$	48 494 10/560K
R55	27000 $\Omega$	48 426 10/27K
R56	33000 $\Omega$	48 426 10/33K
R57	0,22 M $\Omega$	48 426 10/220K
R58	0,39 M $\Omega$	48 426 10/390K
R59	0,22 M $\Omega$	48 426 10/220K
R60	50 $\Omega$	48 494 10/50K
R61	50 $\Omega$	48 494 10/50K
R62	3300 $\Omega$	48 425 10/3K3
R63	3300 $\Omega$	48 425 10/3K3
R64	1 $\Omega$	48 494 10/1K
R65	10 $\Omega$	48 551 10/10K
R66	10 $\Omega$	48 551 10/10K
R67	10 $\Omega$	48 551 10/10K
R68	10 $\Omega$	48 551 10/10K

T1	S1	1824 t (260 V)	V3 616 01.0
	S2, S2'	26 t (3,7 V)	
T2	S1, S1'	582 t (125 V)	V3 620 01.0
	S2, S2'	467 t (100 V)	
	S3	61 t (13 V)	
L1		1300 t	V3 595 00.0
V11			08 100 97.0
V12			08 140 47.0
La1	800 mA		6843
La2	6 V 0,5 A		6843

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: B730

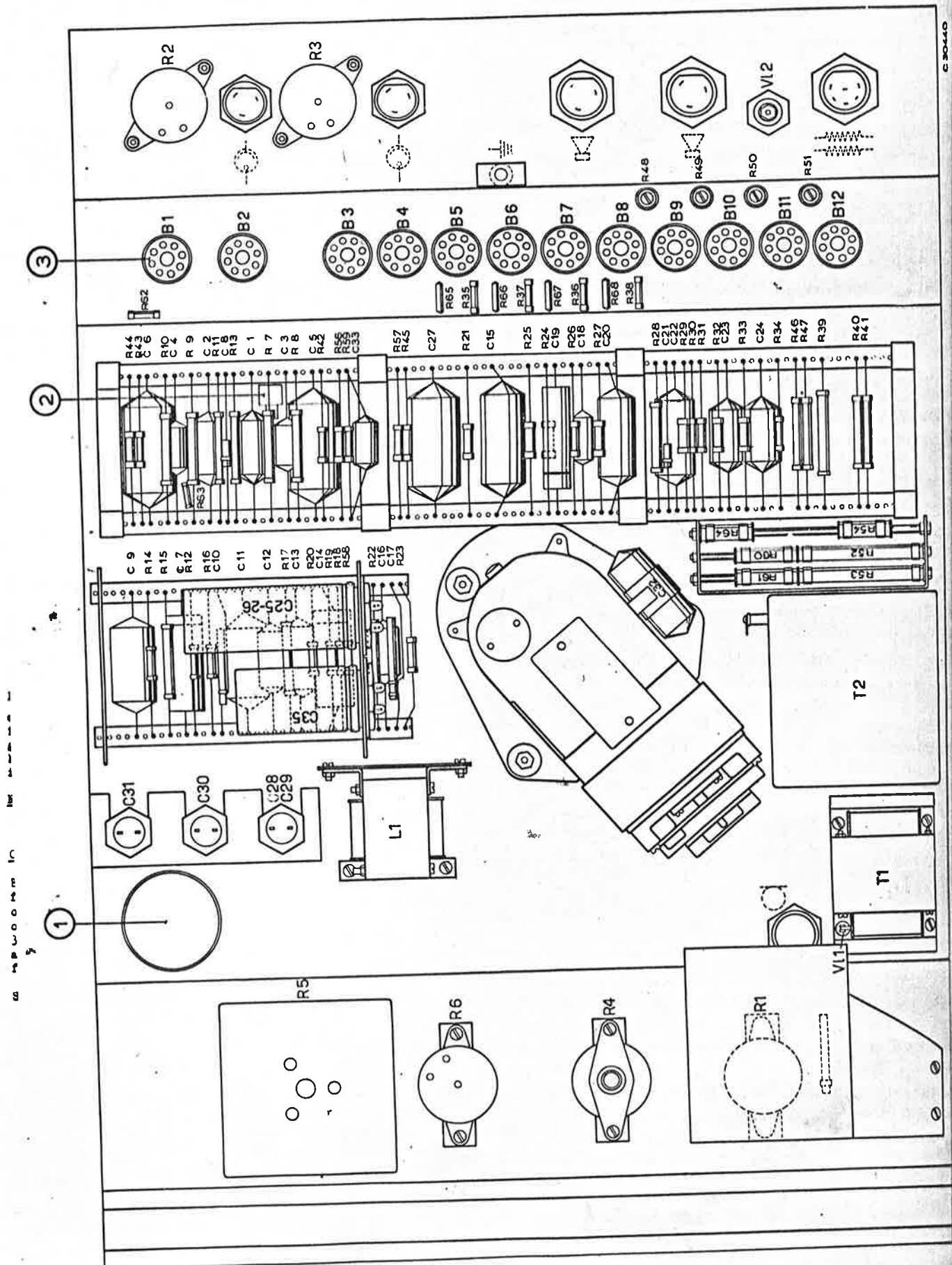
2720

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

1200

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D  
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# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

2720

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

1200

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5-12

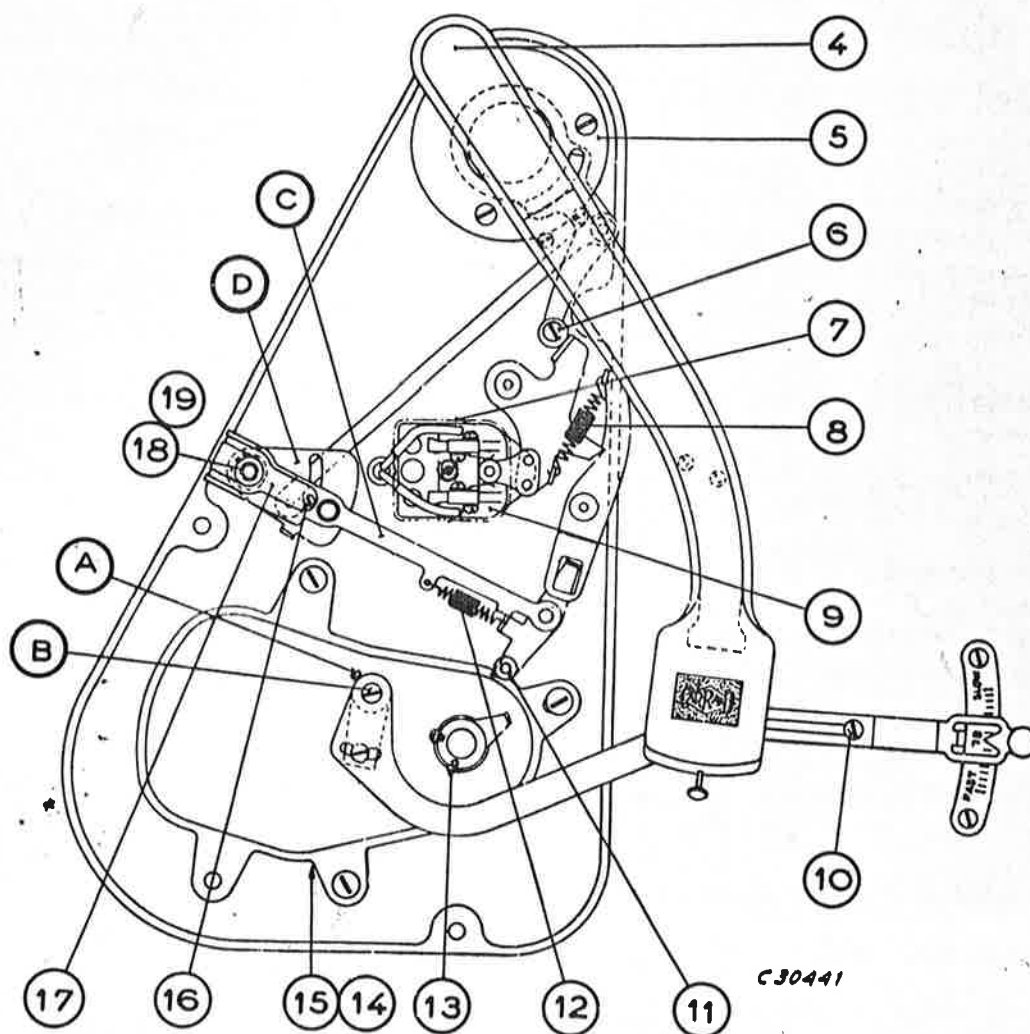


Fig. 2D

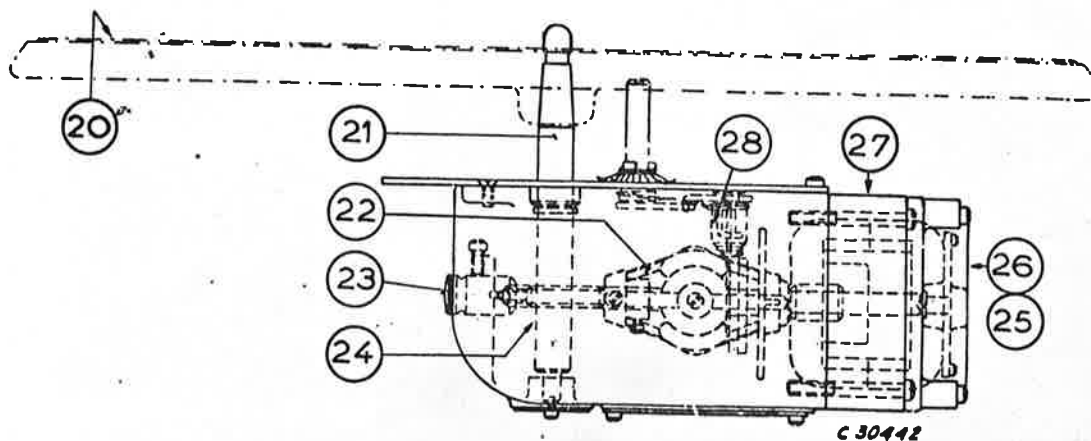


Fig. 3D



# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

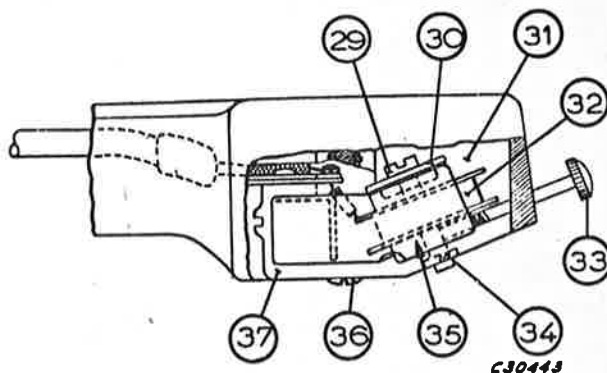
2720

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C30443

Fig. 4D

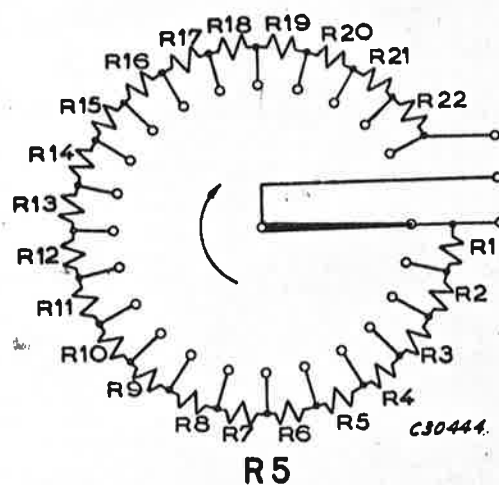
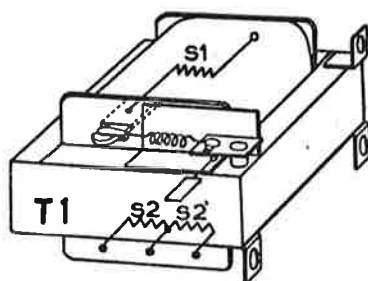
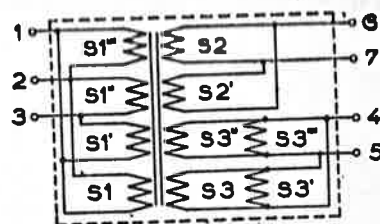
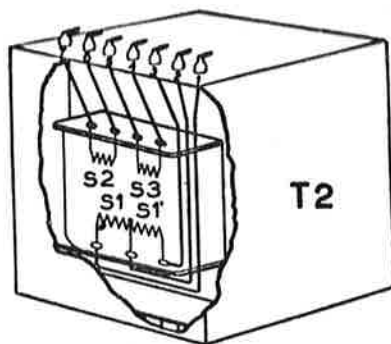


Fig. 5D

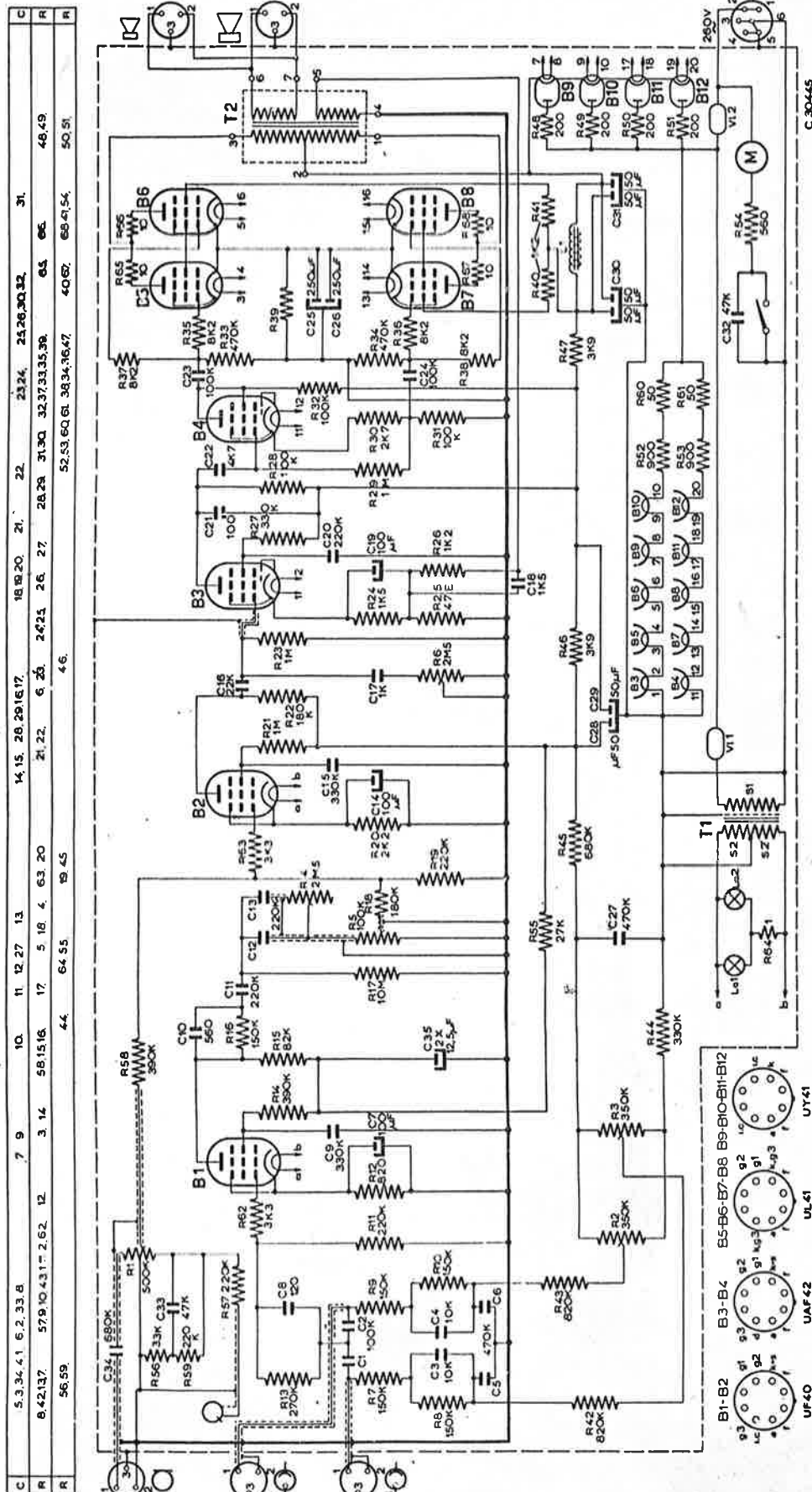


Fig 6 D

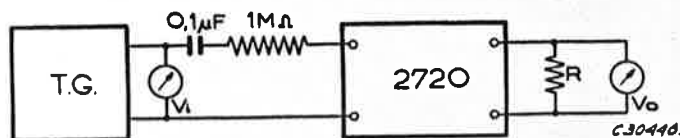


Fig. 7 D

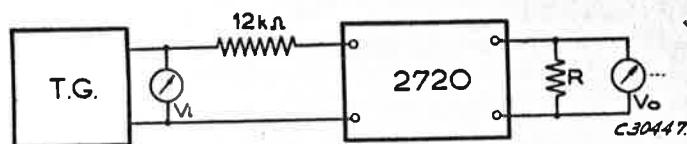


Fig. 8 D

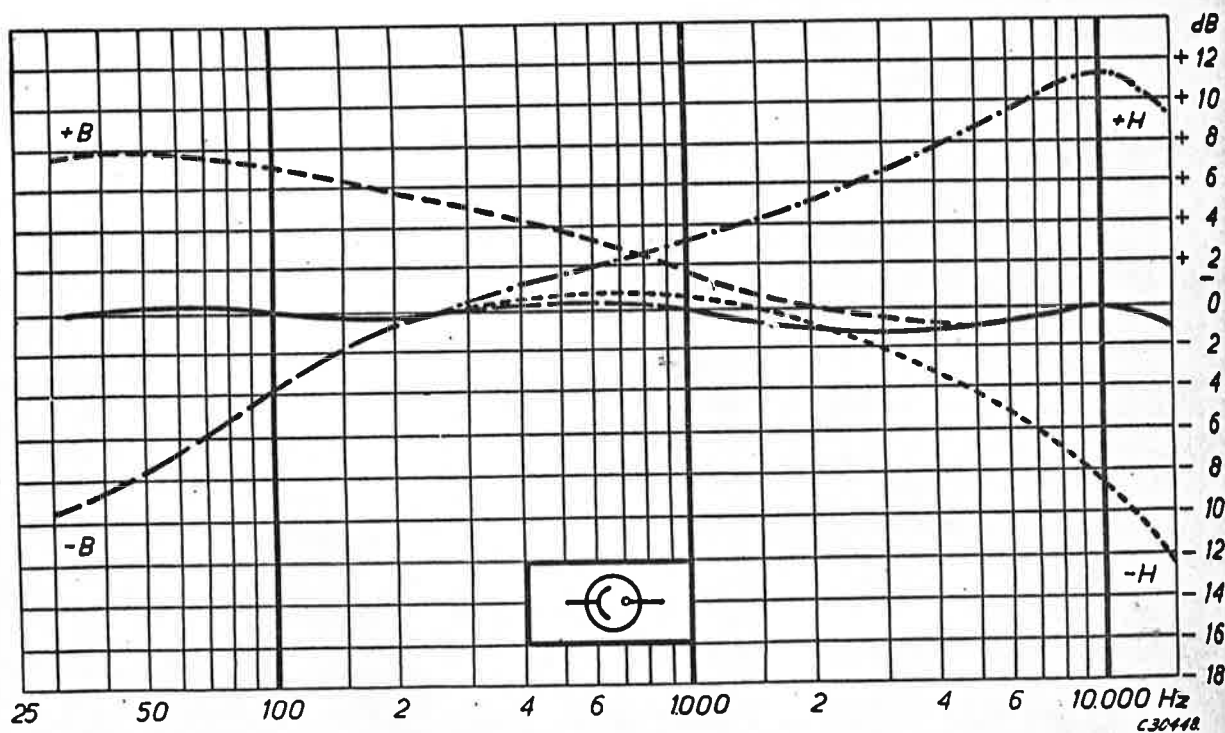


Fig. 9 D

# PHILIPS

SERVICE CINEMA EINDHOVEN

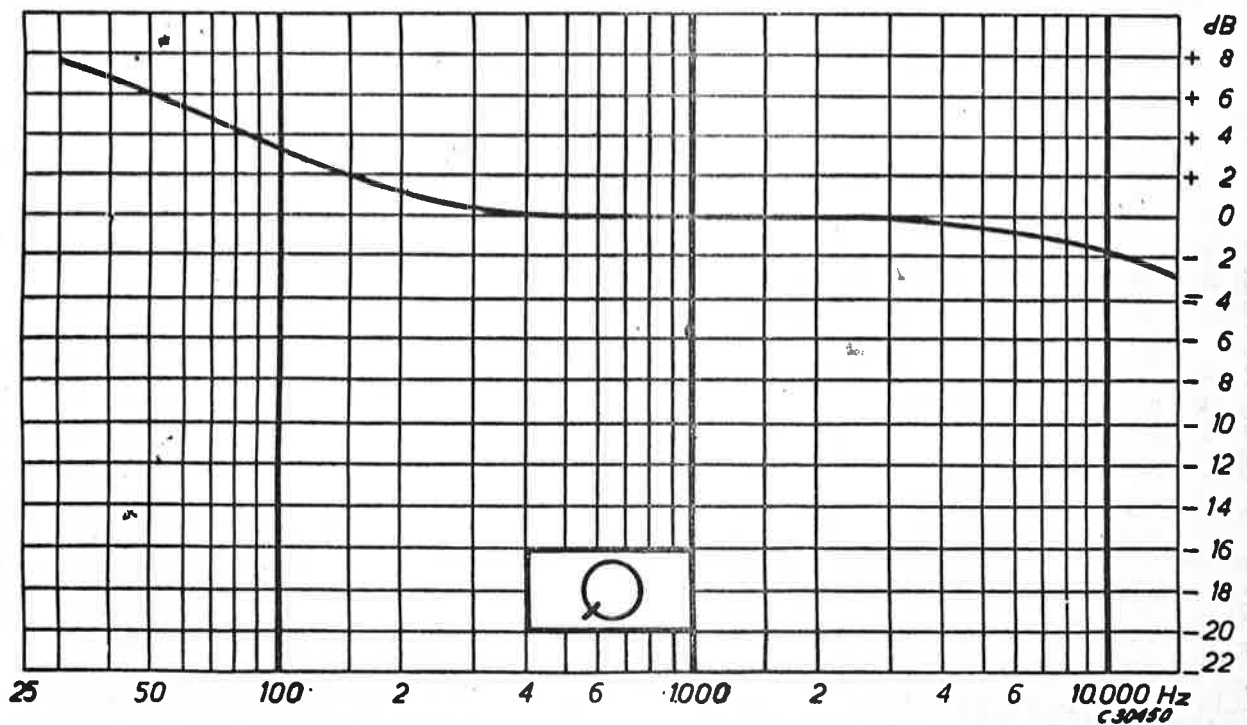
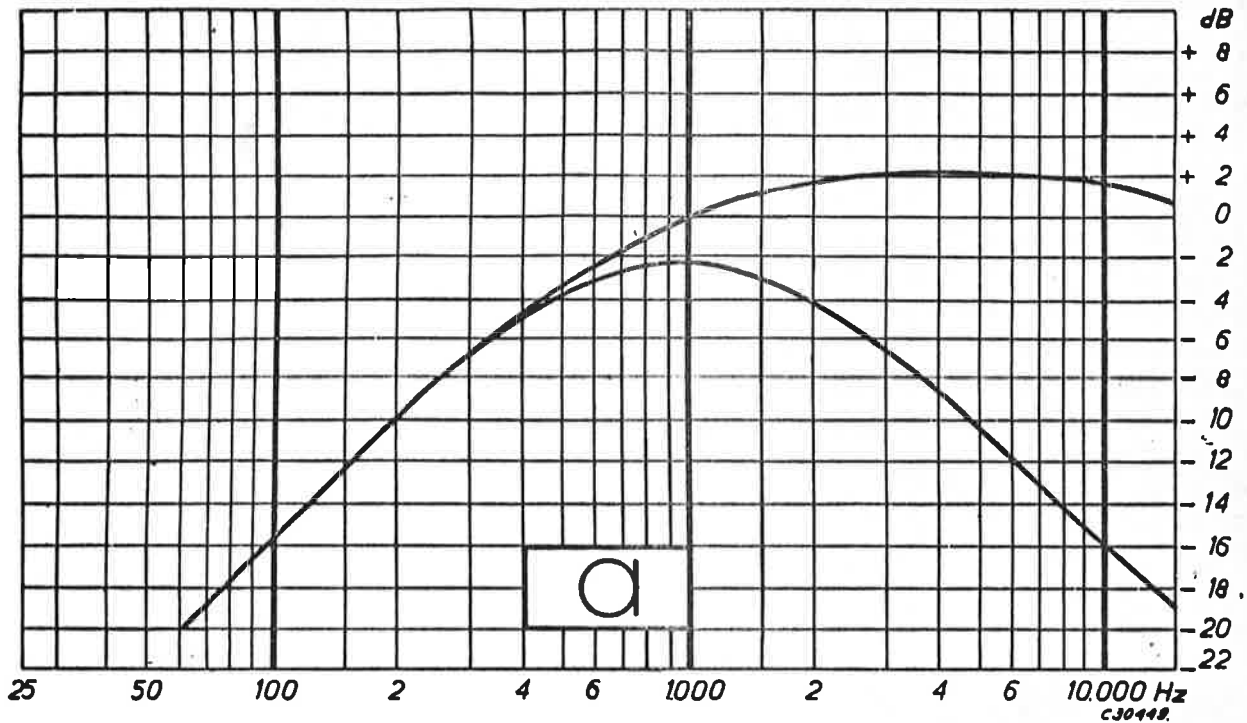
TYPE: 8730

2720

DRAAGBARE INSTALLATIES  
PORTABLE EQUIPMENT.  
INSTALLATIONS TRANSPORTABLES  
INSTALACIONES TRANSPORTABLES

1200

1-2-52

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9.12

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

2778

PORTABLE EQUIPMENT

E1200

1-2-52

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10-12

## A. GENERAL

The universal supply unit type 2778/00 is similar to type 2776/00 except that a 6.3 V DC voltage is provided for the projector exciter lamp, and the mains outlet for feeding the amplifier (type 2720/00) furnishes 260 V AC.

## CIRCUIT DESCRIPTION ( See fig 15D)

In the circuit diagram S1 to S10 inclusive are the auto-transformer windings, S11 is the 260 V AC winding for the amplifier and S14 is the 5 V AC winding for relay, framing and pilot lamp. B1 operates in a full-wave circuit, its output being smoothed by means of L1, C1, C2, L2 and C3. R2 and R3 are voltage dropping resistors to assure that the correct voltage (6.3 DC) is available between points 4 and 2 of the 8-pole socket. Rel is a relay which provides a constant load on the rectifier B1; when the exciter lamp is off the relay contact is closed, and the load resistor R1 is connected across the supply. When the lamp is switched on, the relay coil is energised and R1 is automatically disconnected.

One important difference between this supply unit and the 2776/00 is that in the former, point 4 of the 8-pole socket carries the separate supply voltage for the exciter lamp, whereas in the latter model, point 4 is joined to point 1 and 3 by means of the projector connecting cable. For details of connecting cables see section 3 pages 1 and 2.

## REPLACEMENT PARTS

Fig.	Item	Description	Code no.
12D	1	Knob	23 722 50.0
12D	2	Rotary switch	42 570 14.0
12D	3	Screw plug	23 719 06.0
12D	4	Retaining cap	49 233 08.0
12D	5	Retaining screw	89 312 14.3
12D	6	Valve socket	28 225 35.0
13D	7	8-pole socket	E3 008 23.1
13D	8	Mains socket	E2 555 65.0
13D	9	Cap for item 10	S1 902 29.0
13D	10	Rubber foot	25 985 17.0

See also "General Spare Parts List, 401"

## ELECTRICAL COMPONENTS

No	Description	Value	Code no.
T1	Mains Transformer	S 1 = 110 t	V3 616 02.0
		S 2 = 5 t	
		S3-S4 = 0 t	
		S 5 = 10,5 t	
		S 6 = 64 t	
		S 7 = 39 t	
		S 8 = 9,5 t	
		S 9 = 8,5 t	
		S10 = 7,5 t	
		S12, S12' = 17 t	
		S13 = 2,5 t	
L1	Choke	S 1 = 102 t	V3 595 01.0
L2	Choke	S 1 = 160 t	V3 595 02.0
C1	Electrolytic	12,5V, 500+500µF	48 317 02/500+500
C2	Electrolytic	12,5V, 500+500µF	48 317 02/500+500
C3	Electrolytic	12,5V, 500+500µF	48 317 02/500+500
R1	Wirewound resistor	220, 10W	48 495 10/220
R2	Wirewound resistor	1,6Ω, 6W	48 494 10/16
R3	Wirewound resistor	1,6Ω, 6W	48 494 10/16
B1	Rectifier valve		type 451
Rel	Relay		ND 362 79.0
VL1	Temp. Fuse		08 100 97.0

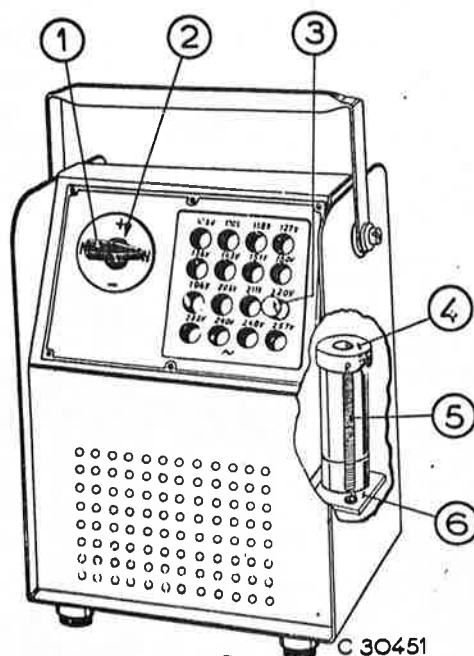


Fig.12D

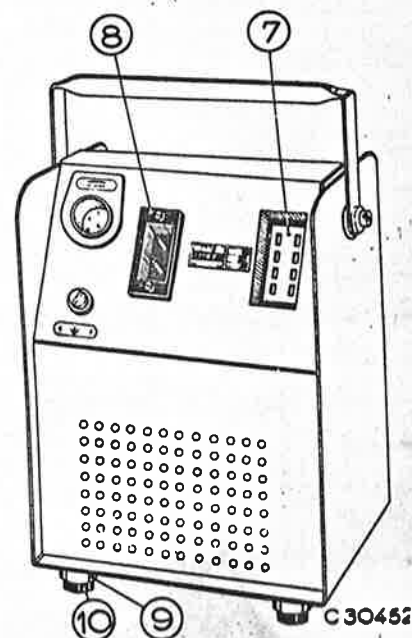


Fig.13D



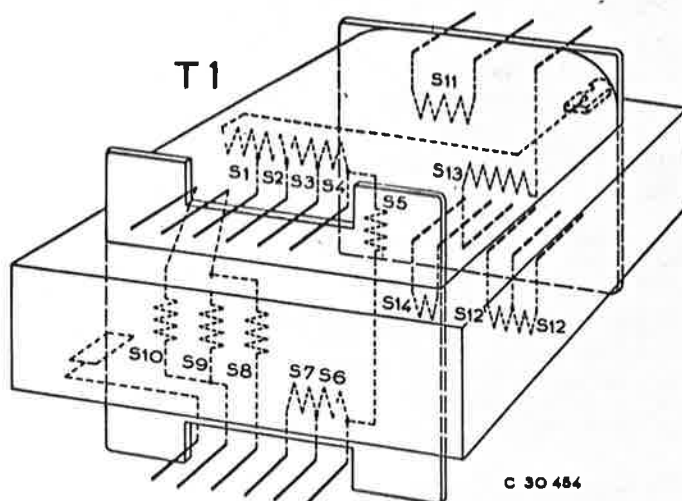


Fig. 14 D

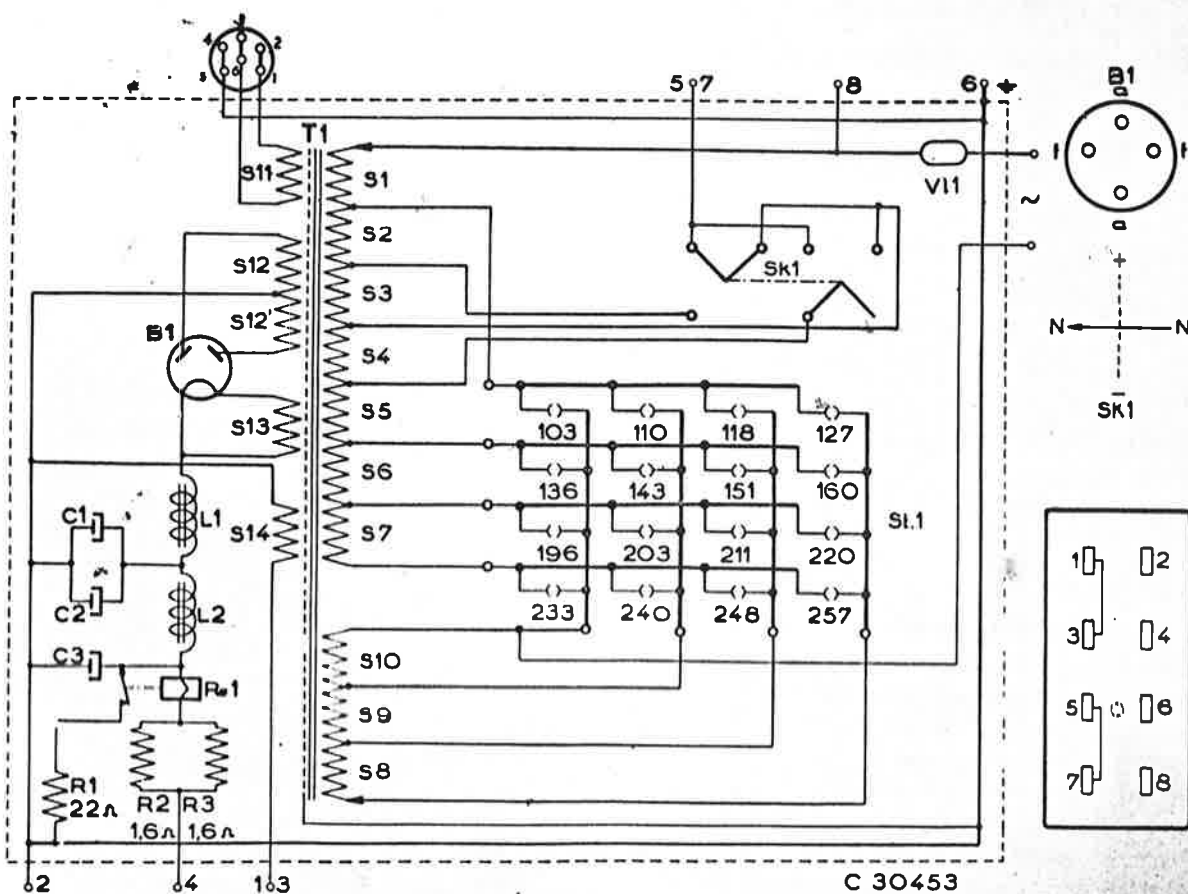


Fig 15 D

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

8722-02-07

PORTABLE EQUIPMENT

E1200

1-4-52

F

1-4

## PROGRAMME CASE

Type no. 8722/02 programme case with contents plus winding and rewinding device, for 8730/00 installations.

## LIST OF CONTENTS

Qty	Description	Code number
6	Fixed reels	8220/70
1	Valve	AX1
1	Valve	EE1
2	Valves	4699
2	Projection lamps	72400
2	Exciter lamps	7251C
1	Photocell	3538
2	Framing lamps	7142D
1	Film splicer	3844
1	Pad roller	22 519 22.1
1	Pad roller	22 519 27.1
1	Tin of oil	C1 602 17.0
1	Bottle film glue and brush	3675
1	Tube of grease	3685
1	6" Screwdriver	C1 602 13.0
1	4" Screwdriver	C1 602 14.0
1	Lens cloth	C1 404 43.0
1	Polishing cloth	440 012 00.0

These parts are obtainable separately from the Commercial Department, with the exception of the two pad rollers which are available from the Service Department.

Type no. 8722/07 programme case with contents plus winding and rewinding device, suitable for 8730/20 installations.

## LIST OF CONTENTS

Qty	Description	Code number
6	Fixed reels	8220/70
1	Valve	EF40
1	Valve	UAF42
1	Valve	UL41
1	Valve	UY41
1	Valve	451
2	Projection lamps	72400
2	Exciter lamps	3874
2	Framing lamps	7171
1	Pilot lamp	6843
1	Photo cell	3538
1	Film splicer	3844
2	Fuses 800 mA	08 140 47.2
1	Pad roller	22 519 22.1
1	Pad roller	22 519 27.1
1	Tin of oil	01 602 17
1	Bottle film glue+brush	3675
1	Tube grease	3685
1	6" Screwdriver	01 602 13.0
1	4" Screwdriver	01 602 14.0
1	Lens cloth	01 404 43.0
1	Polishing cloth	440 012 00.0

Fuses and pad rollers can be supplied by the Service Department, the remainder of the accessories listed above are obtainable from the Commercial Department.

## ORIGINAL

The winding mechanism is attached to the lid of the case. When the lid is opened as far as it will go it is inclined backwards, thereby preventing the reels from sliding off the shafts when winding.

## WINDING

The handle has to be pushed through the small hole in the lid of the case, so that it engages the winding spindle.

- Rewinding:** Place the full reel of film on the unwinding spindle and the empty reel on the take-up spindle.
- Unwinding:** Place the full reel of film on the unwinding spindle and an empty loose reel on the take-up spindle. The film can be removed from the loose reel by pulling apart the flanges of the latter.
- Winding:** First pull the flanges of the loose reel of film apart, then put the roll of film on the unwinding spindle and wind onto a fixed reel placed on the take-up spindle.

## K. MAINTENANCE

Thoroughly grease the winding and unwinding bearings from time to time. Also the teeth of the gear wheels should be given a little grease occasionally.

## W. LIST OF MECHANICAL PARTS FOR BOTH MODELS

Fig.	Item	Description	Code number
1F	1	Pin	22 544 00.0
1F	2	Spindle	22 543 99.0
1F	3	Pinion	22 544 01.0
1F	4	Arm	22 544 07.0
1F	5	Handle	23 705 32.0
1F	6	Gear-wheel	22 544 02.0
1F	7	Friction bearing	23 705 33.0
1F	8	Pad roller	22 519 22.1
1F	9	Pad roller	22 519 27.1

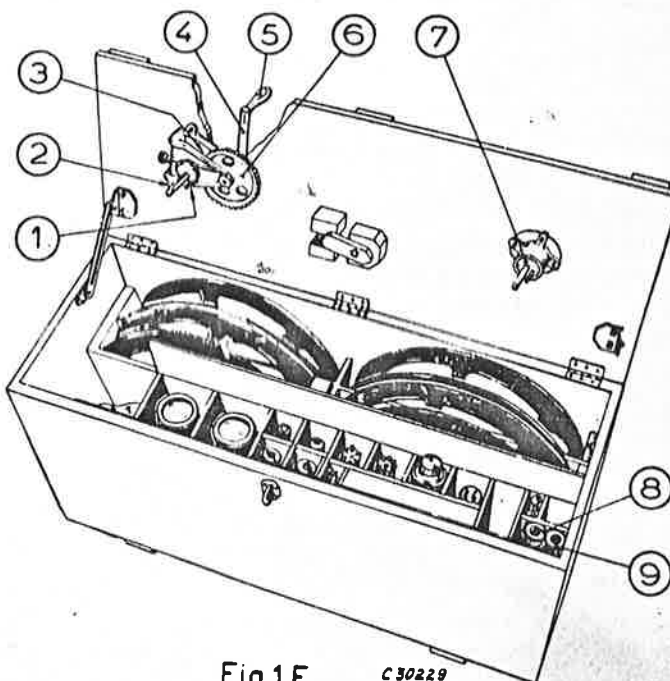


Fig.1F

C 30229

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8730

8715-00

PORTABLE EQUIPMENT

E1200

1-4-52

F  
2-4**PROJECTOR STAND**

Type no. 8715/00 for 600 m spool boxes.

The projector can be secured to the stand by engaging the conical studs on the mounting table in the corresponding holes in the bottom of the projector and screwing up the two bolts (1).

The supporting stay for the film box can be drawn out from the rear leg by turning nut A.

When setting up, make sure the legs are pushed apart as far as possible, so that the steel cables are stretched taut.

**REPLACEMENT PARTS**

Item no.	Description	Code-number
1	Ornamental bolt	22 543 06.0
2	Cable	22 543 11.0

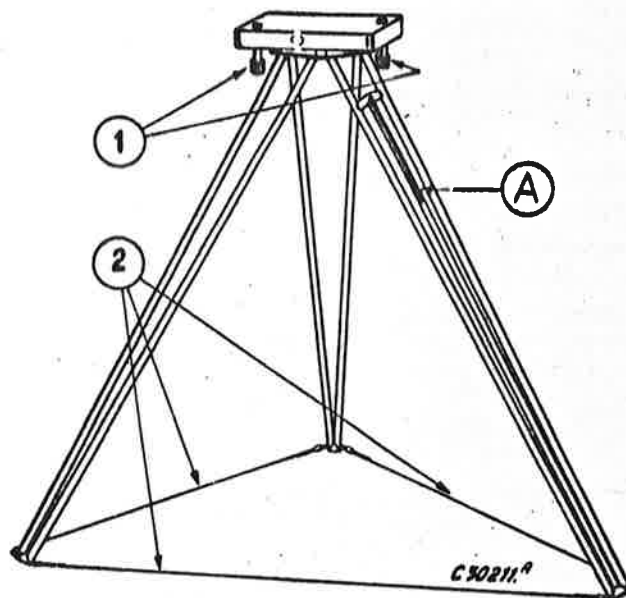


Fig. 2 F

# PHILIPS

SERVICE CINEMA Eindhoven

TYPE: 8730

8709-00

PORTABLE EQUIPMENT

E1200

1-4-52

F  
3-4

## A. GENERAL

These switch boxes are used for twin projector installations in order to change over both sound and picture from one projector to the other. Two identical models, which cannot be interchanged, are available, viz: 8709/00 for installations using amplifier type 2883 and universal supply transformer type 2776. 8709/10 for installations using amplifier type 2720 and universal supply transformer type 2778.

### CIRCUIT DIAGRAM 8709/00 (fig. 5 F)

Points 1 and 2 of the connecting cable are interconnected in parallel with points 1 and 2 of the 8-pole sockets Bu1 and Bu2.

From these points the framing and pilot lamp of the projector are fed.

The feeding point 4 of the exciter lamps is interconnected to point 3 which carries 6 V a.c. The lead from point 3, normally supplying the a.c. relay in the projector direct, is switched over by means of SK1 from point 3 of B1 to Bu2, or vice versa. Thus the relays in the projectors and thereby the projection lamps can be switched on in turn. At the same time the supply for the exciter lamps can be switched over. In the leads from the exciter lamps, between the switch SK1 and points 4 of Bu1 and Bu2 are the variable resistors R1 and R2, coupled to one shaft. Thus for instance when the resistor is turned anti-clockwise the resistance in the circuit leading to Bu1 is increased, whilst in the circuit leading to Bu2 there is no resistance. In this way the sound volume of the two projectors is equalized by regulating the current passing through the exciter lamps.

The resistors can be adjusted with a screwdriver.

## PARTS LIST for 8709/00

Fig.	Item	Description	Code number
3F	1	Potentiometer	C1 601 33.0
3F	2	Potentiometer	C1 601 32.0
3F	3	Control knob	23 575 10.0
3F	4	2 pole switch assembly	22 412 15.5
3F	5	8 pin male plug	V3 606 00.0
3F	6	7 core cable	34 014 62/128Z
3F	7	8 pole socket	E3 008 23.1
4F	8	Photocell cable	33 998 56.0
4F	9	3 pole plug	Y01 601 56.0

The connecting cables between switch box and projectors are identical to that shown in fig. 6K except that they are 3 metres long.

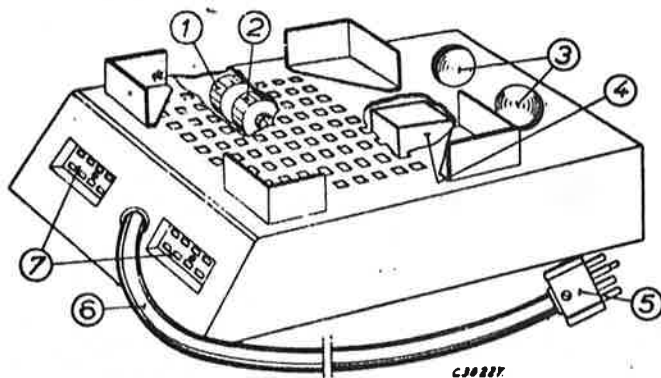


Fig. 3 F

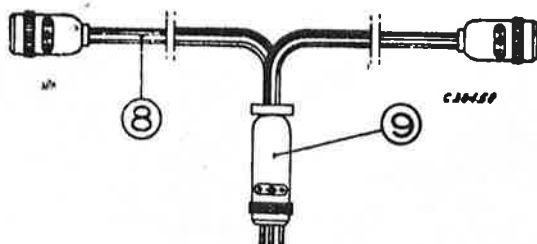


Fig. 4 F

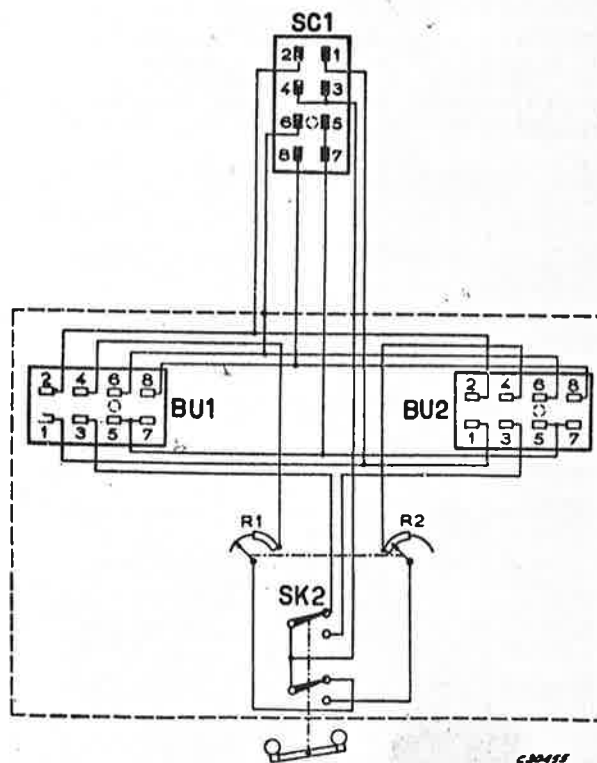



Fig. 5 F

<b>PHILIPS</b> SERVICE CINEMA EINDHOVEN	TYPE: CONNECTION BOX FOR EL 5440 AANSLUITKAST VOOR EL 5440 BOÎTE DE CONNEXION POUR EL 5440 ANSCHLUSSKASTEN FÜR EL 5440 CAJA DE CONEXIÓN PARA EL 5440	PORTABLE EQUIPMENT DRAAGBARE INSTALLATIES INSTALLATIONS TRANSPORTABLES TRAGBARE APPARATE INSTALACIONES TRANSPORTABLES	1200	
			12 - 9 - '62	G
				1 - 4

### V3 835 45

Connection box for EL 5440, if used with mobile 35 mm installation, type 8710 (one projector).  
 On the upper side : a 12-pole pin connector on the left  
 a 12-pole socket connector on the right.

The amplifier EL 5440 is plugged into these connectors (see doc. no. F1041 for further details). On the rear a butterfly nut by means of which the box can be mounted on to the plate, which is fixed to the support.

Aansluitkast voor EL 5440, indien deze gebruikt wordt bij een transportabele 35 mm installatie, type 8710 (één projector).

Aan de bovenzijde, links een 12-polig pennenblok, rechts een 12-polig buizenblok. Hierop past zonder meer de versterker EL 5440 (zie voor verdere gegevens doc.nr. N1041).  
 Aan de achterzijde een vleugelmoer waarmee het kastje op de plaat, die vast aan het statief gemonteerd wordt, vastgezet kan worden.

Boîte de connexion pour EL 5440, si celle-ci est utilisée avec une installation transportable de 35 mm, type 8710 (un projecteur).

Au côté supérieur, à gauche un bloc à broches 12 pôles, à droite un bloc à douilles 12 pôles. L'amplificateur EL 5440 peut y être connecté sans difficulté (voir pour plus de données la documentation No. F1041).  
 Au côté arrière un écrou papillon avec lequel la boîte peut être fixée sur la plaque qui est montée fermement au trépied.

Anschlusskasten für EL 5440, wenn dieser bei einer beweglichen 35 mm-Anlage, Typ 8710 (ein Projektor) benutzt wird.

An der Oberseite links ein 12-poliger Block mit Stiften, rechts ein 12-poliger Block mit Buchsen. Darauf passt ohne weiteres der Verstärker EL 5440 (siehe für weitere Daten Anleitung Nr. D1041). An der Rückseite eine Flügelmutter, mit der der Kasten auf der Platte, die fest an das Stativ montiert wird, festgesetzt werden kann.

Caja de conexión para EL 5440, si se la emplea junto con una instalación portátil de 35 mm, modelo 8710 (un solo proyector).

En la parte superior, a la izquierda un bloque de patillas de 12 polos, a la derecha un bloque de hembrillas de 12 polos. Sobre estos cabe sin más el amplificador EL 5440 (véase para datos ulteriores la Documentación no. S1041).

En la parte trasera se encuentra una tuerca de orejas, con la cual puede fijarse la caja en la placa que se monta fijamente en el pie.

### V3 835 46

Connection box for EL 5440 (see documentation no. F1041) if used with mobile 35 mm installation, type 8710 (two projectors).  
 The amplifier is plugged into the connectors of the box. On the rear a butterfly nut by means of which the box can be mounted on to the plate, which is fixed to the support. The box comprises a change-over relay by means of which the lamprelay - and exciter voltages can be switched over with the aid of push button switches SK1 (on the box) and SK2 (on the cable to the second projector).

Aansluitkast voor EL 5440 (zie doc.nr. N1041), indien deze gebruikt wordt bij een transportabele 35 mm installatie, type 8710 (twee projectoren).

De versterker past zonder meer op de contactblokken van het kastje.

Aan de achterzijde een vleugelmoer, waarmee het kastje op de plaat die vast aan het statief gemonteerd wordt, vastgezet kan worden.

In het kastje een overnamerelais, waarmee de lamprelais- en toonlampspanningen omgeschakeld kunnen worden door middel van drukschakelaars SK1 (op kastje) en SK2 (aan snoer naar tweede projector).

Boîte de connexion pour EL 5440 (voir la documentation No. F1041) lorsque celle-ci est utilisée avec une installation transportable de 35 mm, type 8710 (deux projecteurs).

L'amplificateur peut être connecté sans difficulté aux blocs de contact de la boîte.

Au côté arrière un écrou papillon avec lequel la boîte peut être fixée sur la plaque qui est montée fermement au trépied. Dans la boîte se trouve un relais de passage avec lequel les tensions du relais à lampe et de la lampe excitatrice peuvent être commutées au moyen de commutateurs poussoirs SK1 (sur la boîte) et SK2 (au cordon vers le second projecteur).

Anschlusskasten für EL 5440 (siehe Anleitung Nr. D1041), wenn dieser bei einer beweglichen 35 mm-Anlage, Typ 8710 (zwei Projektoren) benutzt wird.

Der Verstärker passt ohne weiteres auf die Kontaktblöcke des Kastens. An der Rückseite eine Flügelmutter, mit der der Kasten auf der Platte, die fest an das Stativ montiert wird, festgesetzt werden kann.

In dem Kasten ein Uebernerelais, mit dem die Lampenrelais- und Tonlampenspannungen mittels eines Druckschalters SK1 (auf dem Kasten) und SK2 (an der Schnur zum zweiten Projektor) umgeschaltet werden können.

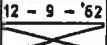
Caja de conexión para EL 5440 (véase la Documentación no. S1041), si se la usa con una instalación portátil de 35 mm, modelo 8710 (dos proyectores).

El amplificador cabe sin más en los bloques de contacto de la caja.

En la parte trasera una tuerca de orejas, con la cual puede fijarse la caja en la placa que se monta fijamente en el pie.

En la caja un relé de paso con el cual pueden conmutarse las tensiones de relé de lámpara y lámpara excitadora mediante los pulsadores SK1 (en caja) y SK2 (un cordón al segundo proyector).



<b>PHILIPS</b> SERVICE CINEMA EINDHOVEN	TYPE: CONNECTION BOX FOR EL 5440 AANSLUITKAST VOOR EL 5440 BOITE DE CONNEXION POUR EL 5440 ANSCHLUSSKASTEN FÜR EL 5440 CAJA DE CONEXIÓN PARA EL 5440	PORTABLE EQUIPMENT DRAAGBARE INSTALLATIES INSTALLATIONS TRANSPORTABLES TRAGBARE APPARATE INSTALACIONES TRANSPORTABLES	1200	
			12 - 9 - '62 	G 1 - 4

### V3 835 45

Connection box for EL 5440, if used with mobile 35 mm installation, type 8710 (one projector).  
 On the upper side : a 12-pole pin connector on the left  
 a 12-pole socket connector on the right.

The amplifier EL 5440 is plugged into these connectors (see doc. no. E1041 for further details). On the rear a butterfly nut by means of which the box can be mounted on to the plate, which is fixed to the support.

Aansluitkast voor EL 5440, indien deze gebruikt wordt bij een transportabele 35 mm installatie, type 8710 (één projector).  
 Aan de bovenzijde, links een 12-polig pennenblok, rechts een 12-polig buisblok. Hierop past zonder meer de versterker EL 5440 (zie voor verdere gegevens doc.nr. N1041).  
 Aan de achterzijde een vleugelmoer waarmee het kastje op de plaat, die vast aan het statief gemonteerd wordt, vastgezet kan worden.

Boite de connexion pour EL 5440, si celle-ci est utilisée avec une installation transportable de 35 mm, type 8710 (un projecteur).  
 Au côté supérieur, à gauche un bloc à broches 12 pôles, à droite un bloc à douilles 12 pôles. L'amplificateur EL 5440 peut y être connecté sans difficulté (voir pour plus de données la documentation No. F1041).  
 Au côté arrière un écrou papillon avec lequel la boîte peut être fixée sur la plaque qui est montée fermement au trépied.

Anschlusskasten für EL 5440, wenn dieser bei einer beweglichen 35 mm-Anlage, Typ 8710 (ein Projektor) benutzt wird.  
 An der Oberseite links ein 12-poliger Block mit Stiften, rechts ein 12-poliger Block mit Buchsen. Darauf passt ohne weiteres der Verstärker EL 5440 (siehe für weitere Daten Anleitung Nr. D1041). An der Rückseite eine Flügelmutter, mit der der Kasten auf der Platte, die fest an das Stativ montiert wird, festgesetzt werden kann.

Caja de conexión para EL 5440, si se la emplea junto con una instalación portátil de 35 mm, modelo 8710 (un solo proyector).  
 En la parte superior, a la izquierda un bloque de patillas de 12 polos, a la derecha un bloque de hembrillas de 12 polos. Sobre estos cabe sin más el amplificador EL 5440 (véase para datos ulteriores la Documentación no. E1041).  
 En la parte trasera se encuentra una tuerca de orejas, con la cual puede fijarse la caja en la placa que se monta fijamente en el pie.

### V3 835 46

Connection box for EL 5440 (see documentation no. E1041) if used with mobile 35 mm installation, type 8710 (two projectors).  
 The amplifier is plugged into the connectors of the box. On the rear a butterfly nut by means of which the box can be mounted on to the plate, which is fixed to the support. The box comprises a change-over relay by means of which the lamprelay - and exciter voltages can be switched over with the aid of push button switches SK1 (on the box) and SK2 (on the cable to the second projector).

Aansluitkast voor EL 5440 (zie doc.nr. N1041), indien deze gebruikt wordt bij een transportabele 35 mm installatie, type 8710 (twee projectoren).  
 De versterker past zonder meer op de contactblokken van het kastje.  
 Aan de achterzijde een vleugelmoer, waarmee het kastje op de plaat die vast aan het statief gemonteerd wordt, vastgezet kan worden.  
 In het kastje een overnamerelais, waarmee de lamprelais- en toonlampspanningen omgeschakeld kunnen worden door middel van drukschakelaars SK1 (op kastje) en SK2 (aan snoer naar tweede projector).

Boite de connexion pour EL 5440 (voir la documentation No. F1041) lorsque celle-ci est utilisée avec une installation transportable de 35 mm, type 8710 (deux projecteurs).  
 L'amplificateur peut être connecté sans difficulté aux blocs de contact de la boîte.  
 Au côté arrière un écrou papillon avec lequel la boîte peut être fixée sur la plaque qui est montée fermement au trépied. Dans la boîte se trouve un relais de passage avec lequel les tensions du relais à lampe et de la lampe excitatrice peuvent être commutées au moyen de commutateurs poussoirs SK1 (sur la boîte) et SK2 (au cordon vers le second projecteur).

Anschlusskasten für EL 5440 (siehe Anleitung Nr. D1041), wenn dieser bei einer beweglichen 35 mm-Anlage, Typ 8710 (zwei Projektoren) benutzt wird.  
 Der Verstärker passt ohne weiteres auf die Kontaktblöcke des Kastens. An der Rückseite eine Flügelmutter, mit der der Kasten auf der Platte, die fest an das Stativ montiert wird, festgesetzt werden kann.  
 In dem Kasten ein Uebernerelais, mit dem die Lampenrelais- und Tonlampenspannungen mittels eines Druckschalters SK1 (auf dem Kasten) und SK2 (an der Schnur zum zweiten Projektor) umgeschaltet werden können.

Caja de conexión para EL 5440 (véase la Documentación no. E1041), si se la usa con una instalación portátil de 35 mm, modelo 8710 (dos proyectores).  
 El amplificador cabe sin más en los bloques de contacto de la caja.  
 En la parte trasera una tuerca de orejas, con la cual puede fijarse la caja en la placa que se monta fijamente en el pie.  
 En la caja un relé de paso con el cual pueden conmutarse las tensiones de relé de lámpara y lámpara excitadora mediante los pulsadores SK1 (en caja) y SK2 (un cordón al segundo proyector).



# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE:  
CONNECTION BOX FOR EL 5440  
AANSLUITKAST VOOR EL 5440  
BOITE DE CONNEXION POUR EL 5440  
ANSCHLUSSKASTEN FÜR EL 5440  
CAJA DE CONEXIÓN PARA EL 5440

PORTABLE EQUIPMENT  
DRAAGBARE INSTALLATIES  
INSTALLATIONS TRANSPORTABLES  
TRAGBARE APPARATE  
INSTALACIONES TRANSPORTABLES

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Pos.	Code	
1	V3 607 00	Socket connector Bussenblok Bloc à douilles Block mit Buchsen Bloque de hembrillas
2	978/12	Loudspeaker plug connector Luidsprekerstopcontact Prise de haut-parleur Lautsprechersteckdose Enchufe hembra de altavoz
3	977/M01	6-pole pin connector 6-polig pencocontact Contact à broche 6 pôles 6-poliger Stiftkontakt Enchufe macho de 6 polos
4	V3 606 01	8-pole female plug Kontrastecker Fiche femelle 8 pôles 8-poliger Kontrastecker Enchufe hembra cable de 8 polos
5	977/F05	3-pole socket connector 3-polige steker (bussen) Fiche tripolaire 3-poliger Stecker (Buchsen) Enchufe hembra de 3 polos
6	977/M05	3-pole pin connector 3-polig pencocontact Contact à broche tripolaire 3-poliger Stiftkontakt Enchufe macho de 3 polos
7	V3 606 99	Pin connector Pennenblok Bloc à broches Block mit Stiften Bloque de patillas
8	970/0,5x350	Push button switch Drukschakelaar Commutateur poussoir Druckschalter Pulsador
RE1	NF 162 40	Relay Relais Relais Relais Relé
GR1	V3 696 97	Selenium rectifier Selsengelijkrichter Redresseur au sélénium Selengleichrichter Rectificador de selenio
C1	910/B250	Capacitor Condensator Condensateur Kondensator Condensador
C2	910/B250	Capacitor Condensator Condensateur Kondensator Condensador
R1	902/18E	Resistor Weerstand Résistance Widerstand Resistencia

# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE:  
CONNECTION BOX FOR EL 5440  
AANSLUITKAST VOOR EL 5440  
BOÎTE DE CONNEXION POUR EL 5440  
ANSCHLUSSKASTEN FÜR EL 5440  
CAJA DE CONEXIÓN PARA EL 5440

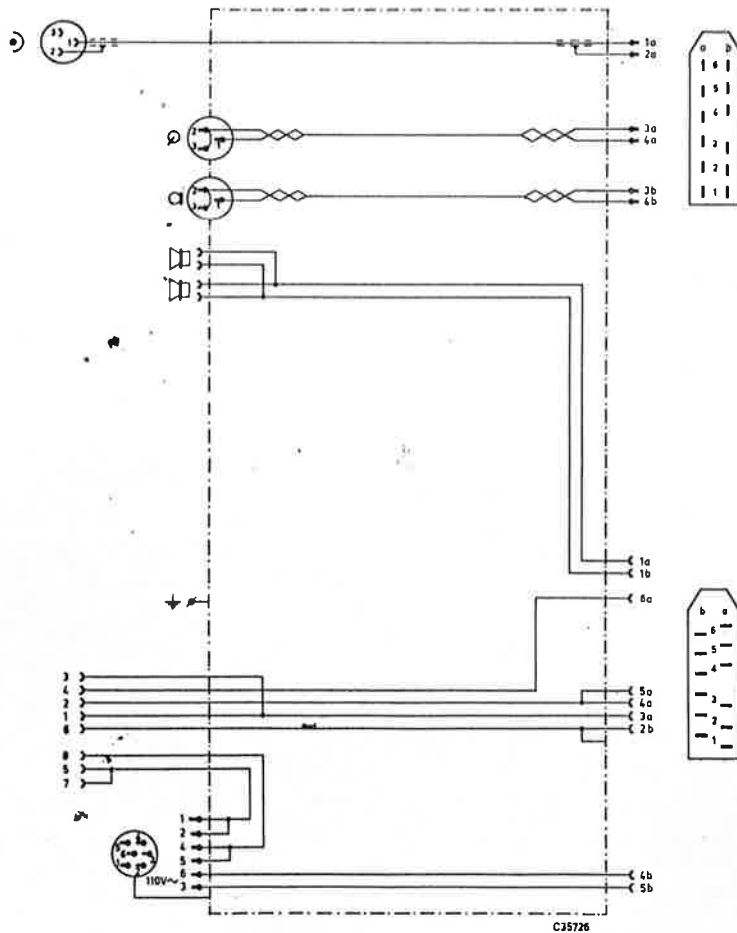
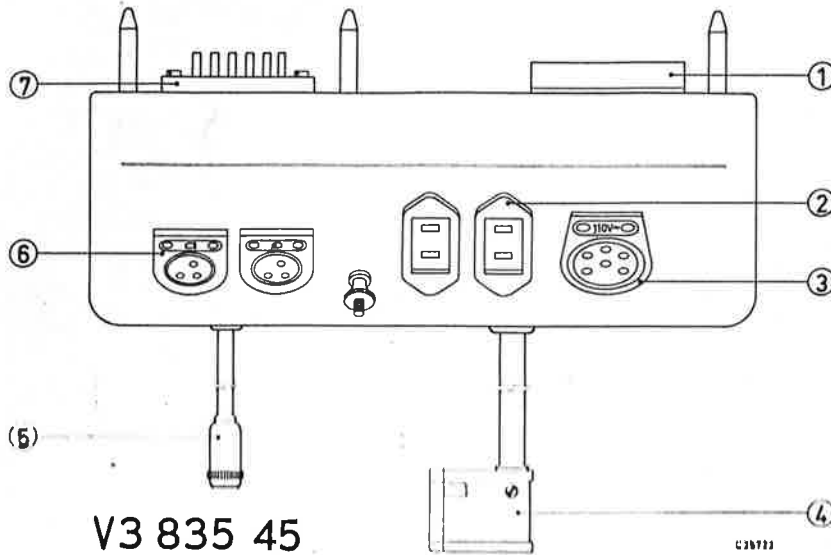
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INSTALLATIONS TRANSPORTABLES  
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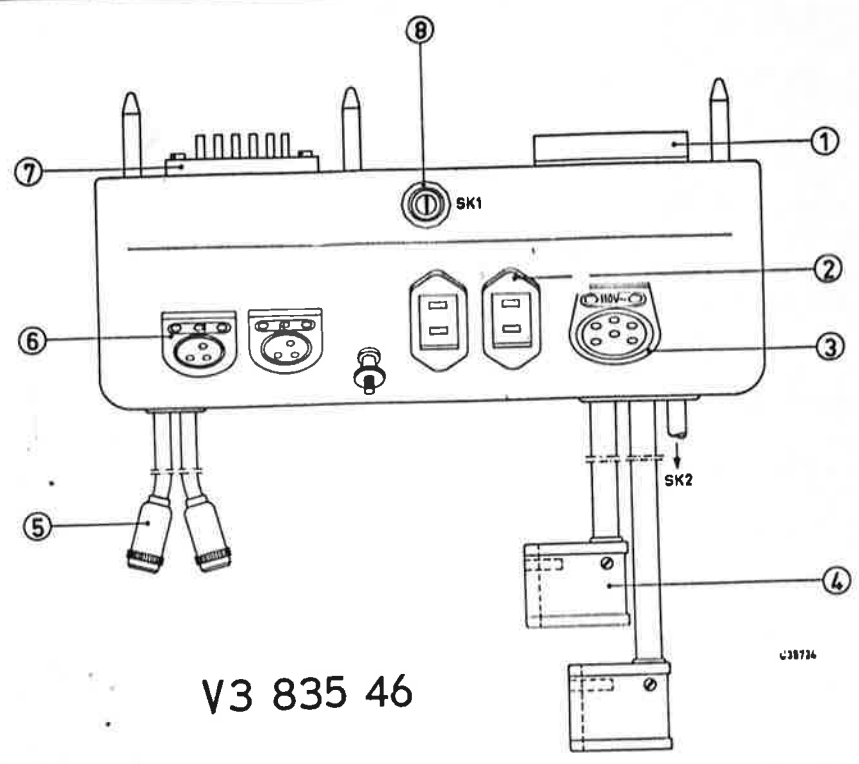
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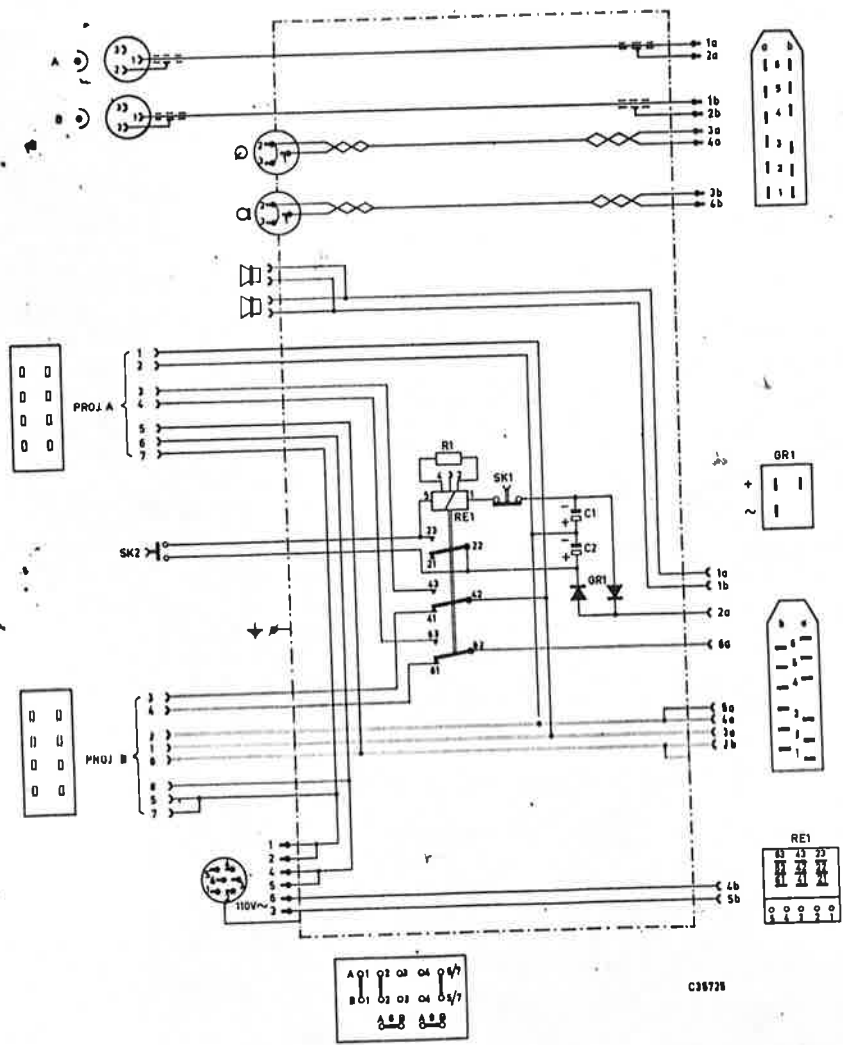


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<h1>PHILIPS</h1> <p>SERVICE CINEMA EINDHOVEN</p>	TYPE: CONNECTION BOX FOR EL 5440 AANSLUITKAST VOOR EL 5440 BOÎTE DE CONNEXION POUR EL 5440 ANSCHLUSSKASTEN FÜR EL 5440 CAJA DE CONEXIÓN PARA EL 5440	PORTABLE EQUIPMENT DRAAGBARE INSTALLATIES INSTALLATIONS TRANSPORTABLES TRAGBARE APPARATE INSTALACIONES TRANSPORTABLES	1200
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V3 835 46



C38726

For projectormechanism see E 1200

For pedestal see E 701

For installation instructions see E 403  
2xFP3 and M2-amplifier

## SAFETY SHUTTER SWITCH

The EL4704 shutter switch provides for the automatic closing of the electromagnetically controlled shutters over the windows in the projection room in the event of the filmcatching fire in the FP3 projector. The switch, which functions simultaneously with the other fire protection devices in the projector, is normally kept depressed by the wire cable "9" operating the guillotine, see page 6-17, fig. 1 E 1200 Service Notes. If the film catches fire in the projector, the celluloid loop burns through, the cable is released and as a result the shutter switch opens. Since this switch is connected in series with the rectifier EL4701 which energizes the magnets of the shutters EL4702 (see fig. 1) the latter will be released.

Fig. 2 shows the position of the switch in the projector and its connection to the terminal block in the pedestal.

## MOUNTING

To mount the switch proceed as follows :

- Remove the flywheel and the large hard-fibre gearwheel.
- Drill 3 holes in the upper right-hand corner of the projector as indicated in fig. 4. When drilling these holes take care that no metal filings fall into the projector.
- Mount the switch by means of two screws.
- Remove the two upper cover plates from the pedestal.
- Mount the bracket + 2-way terminal block as indicated in fig. 3.

- Feed the cable through the opening in the pedestal the ventilating slot in bottom of the projector, through the space between motor and partition, and up to the switch. Bend the cable as shown in fig. 2 and secure it with the brackets supplied.
- Solder the cable to the switch and screw the cable lugs to the 2 - way terminal block.
- Press in the switch and slip the wire cable "9" into the slot in the push button on the switch (see fig. 5).
- Connect up the wiring between 2 - way terminal block, rectifier EL4702 and electro - magnetically controlled shutters EL4701.

For details of the latter two units see Service Notes E 1305.

## REPLACEMENT PARTS.

Item	Fig.	Code number	Description
1	6	970/2x350	Switch
2	6	R 613 KA/31AJ0	Cable
3	6	967/Q2	Terminal block

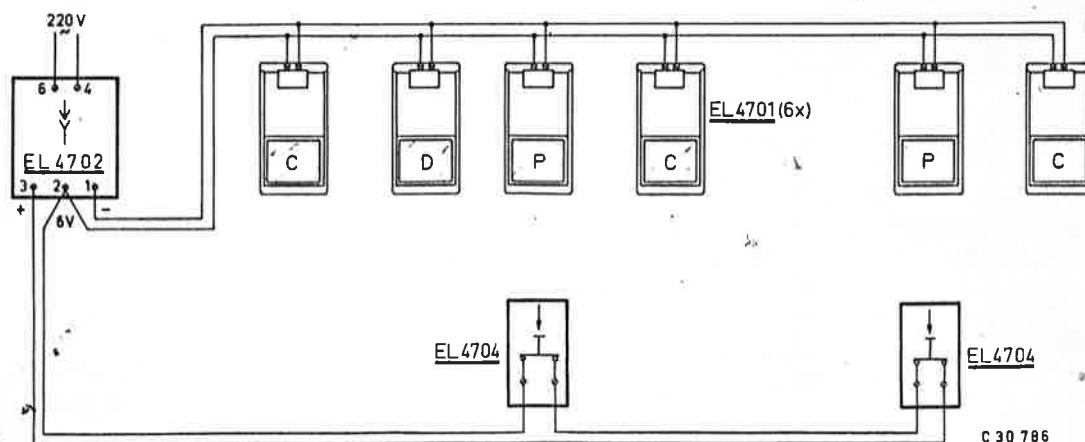


Fig.1



# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE:

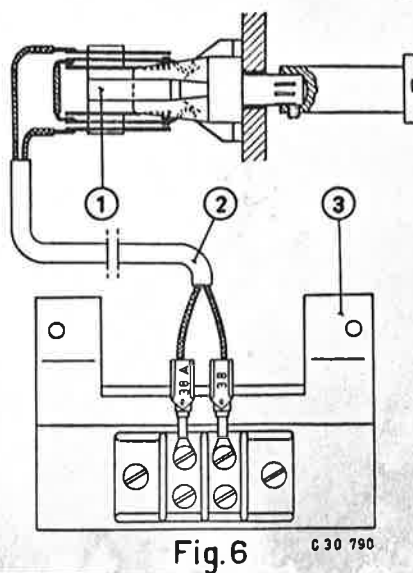
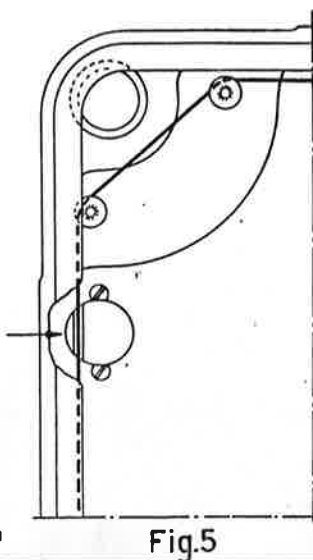
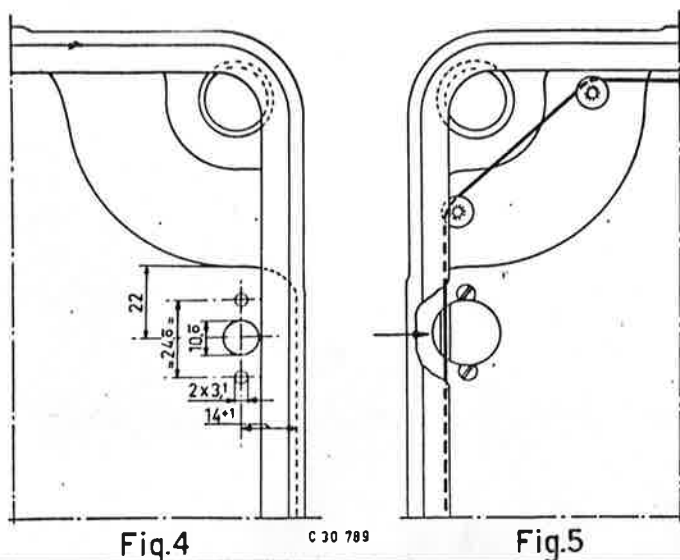
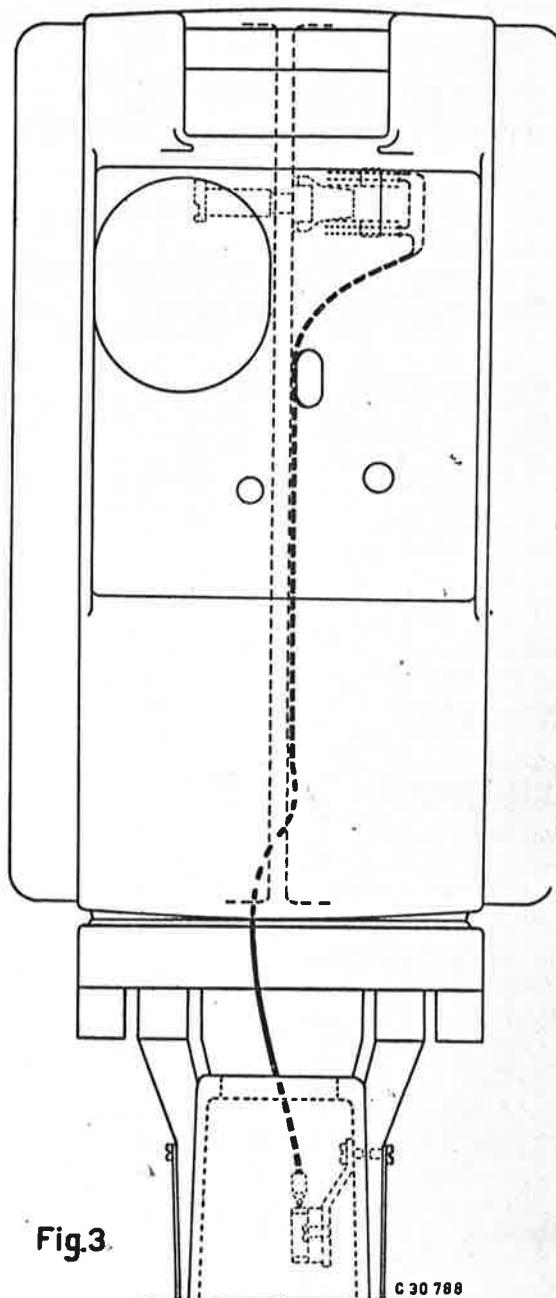
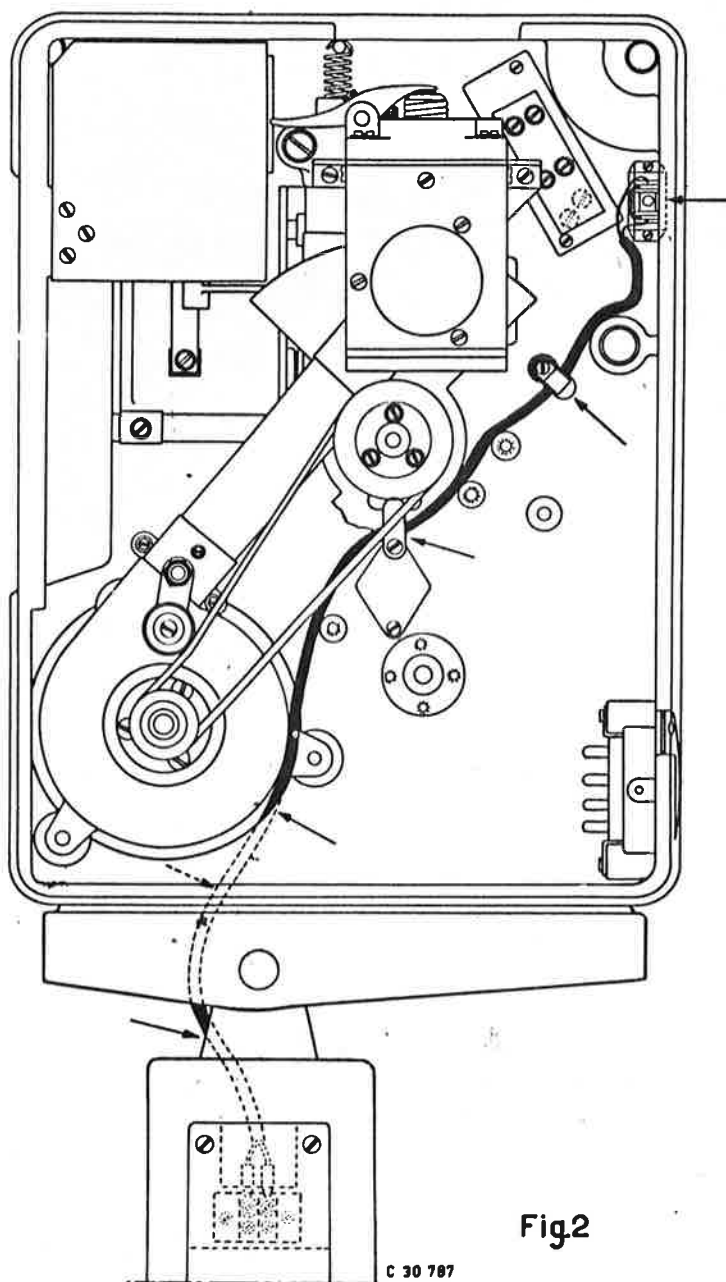
## FP 3

PROJECTORS  
PROJECTOREN  
PROJECTEURS  
PROYECTORES

501

19 - 4 - '62  
~~15 - 8 - '52~~

2 - 2



The pedestal and mounting table of the FP 3 have been slightly modified. The variable resistor, Fig. 1, is no longer available. For fitting the new resistor 2 holes must be drilled. The mounting plate, type number 8731/10, has a facility for fitting a slide device.

Fig. 1 shows the pedestal and the mounting table, type 8731/00. The wiring, Fig. 2, applies both to type 8731/10 and 8731/00.

The projector FP3 should be placed on the mounting table in such a way, that the short tapered pins of the mounting table engage with the corresponding holes at the underside of the projector. Then secure the fixing bolts.

After the double spool box has been fitted to the projector, the rod-support is inserted through the bush in the spool box and secured at the required tilting angle.

The projection lamp can be shifted by means of the large milled nut. The small milled nut serves for raising and lowering the lamp. For the correct alignment of the slide device, refer to "Installation Instructions FP 3, N 403".

In series with the projection lamp load, a micro-switch has been included, which is operated by the slide bracket, and interrupts the light-beam when the slide is moved.

The meter unit consists of a voltmeter and a variable resistor. When employing two projectors, then light output can be equalised by means of this variable resistor. The Figs. 1, 3, 4, 5 and 6 apply to the new versions, the Figs. 2 and 3 to the old versions. The plug of the photo-cell cable has code number 977/F05. The code number of the photo-cell cable is R287 KA/02AA0. The circuit diagram of the change-over circuit is shown in Fig. 5.

Die FüÙe und Neigevorrichtungen des FP3 Projektors sind ein wenig geändert worden. Die Ausführung mit dem nach aussen gebauten Regelwiderstand, Abb. 1, wird nicht mehr geliefert. Für Montage eines neuen Regelwiderstandes müssen zwei Löcher gebohrt werden.

Die Montageplatte des Typennummers 8731/10 hat eine Einbaumöglichkeit für eine Diavorrichtung. Abb. 1 zeigt den Fuss und die Neigevorrichtung vom Typ 8731/00. Die Verdrahtung, Abb. 2, gilt sowohl für Typ 8731/10 wie auch für Typ 8731/00. Der Bildwerfer FP3 muss so auf der Neigevorrichtung angebracht werden, dass die kurzen, konischen Stifte der Neigevorrichtung in die gegenüberliegenden Löcher in der Unterseite des Bildwerfers kommen. Dann die Befestigungsbolzen anziehen.

Nachdem die doppelte Filmtrommel auf dem Bildwerfer angebracht wurde, wird die Stützstange durch die Buchse in der Filmtrommel gesteckt und unter dem gewünschten Winkel festgeschraubt. Mit der grossen Rändelmutter kann die Projektionslampe hin- und hergeschoben werden. Mit der kleinen Rändelmutter kann die Lampe höher und niedriger gestellt werden.

Für die richtige Einstellung der Diavorrichtung wird auf "Installationsvorschriften FP3, N 403" verwiesen.

In Reihe mit der Leitung der Projektionslampe wurde ein Mikroschalter aufgenommen, der vom Diapositivschieber bedient wird und während der Bewegung des Dias das Licht unterbricht.

Die Instrumenteneinheit besteht aus einem Voltmeter und einem Regelwiderstand. Wenn zwei Bildwerfer benutzt werden, kann mit dem Regelwiderstand den Lichtertrag beider Bildwerfer gleichgestellt werden.

Die Abbildungen 1, 3, 4, 5 und 6 beziehen sich auf die neue Ausführung. Die Abbildungen 2 und 3 betreffen die alte Ausführung.

Der Stecker des Fotozellenkabels hat Kodenummer 977/F05. Das Fotozellenkabel hat Kodenummer R 287 KA/02AA0.

Das Schaltbild der Überblendung ist in Abb. 5 dargestellt.

De voeten en wippen van de FP3 hebben enige wijzigingen ondergaan. De uitvoering met de uitgebouwde regelweerstand, fig. 1, wordt niet meer geleverd. Voor het monteren van een nieuwe regelweerstand moeten er 2 gaten geboord worden.

De montageplaat van het typenummer 8731/10 heeft een mogelijkheid voor dialnrichting. Fig. 1 toont de voet en wip, type 8731/00. De bedrading, fig. 2, geldt zowel voor type 8731/10 als voor type 8731/00.

De projector FP3 moet zo op de wip geplaatst worden, dat de korte conische pennen van de wip in de tegenover liggende gaten in de onderkant van de projector steken. Draai daarna de bevestigingsbouten vast.

Nadat de dubbele filmtrommel op de projector is aangebracht, wordt de steunstaaf door de bus in de filmtrommel gestoken en onder de vereiste hellingshoek vastgeschroefd.

Met de grote kartelmoer kan de projectielamp heen en weer worden geschoven.

Met de kleine kartelmoer kan de lamp hoger en lager worden gesteld.

Voor de juiste instelling van de dia-inrichting zie: "Installatievoorschriften FP3, N 403".

In serie met de leiding van de projectielamp is een microschakelaar opgenomen, die door de diapositief-schuif wordt bediend, en tijdens het schakelen van het dia-positief het licht onderbreekt.

De meterunit bestaat uit een voltmeter en een regelweerstand. In geval twee projectoren worden gebruikt kan met de regelweerstand de lichtopbrengst gelijkgesteld worden. De figuren 1, 3, 4, 5 en 6 hebben betrekking op de nieuwe uitvoering.

De figuren 2 en 3 hebben betrekking op de oude uitvoering. De plug van de fotocelkabel heeft codenummer 977/F05.

De fotocelkabel heeft codenummer R 287 KA/02AA0. Het prinsipschema van de overnameschakeling is in fig. 5 weergegeven.

Les piédestaux et le tableau de montage du FP3 ont subi quelques modifications. La version équipée de la résistance variable en saillie, fig. 1, n'est plus livrée. Pour le montage d'une nouvelle résistance variable il faut percer 2 trous. La plaque de montage du type 8731/10 permet l'équipement pour diapositives.

La figure 1 montre le piédestal et le tableau de montage du type 8731/00. Le câblage, fig. 2, est valable tant pour le type 8731/10 que pour le 8731/00. Le projecteur FP3 doit être placé sur le tableau de montage de manière que les courtes broches coniques de celui-ci s'enfoncent dans les trous opposés du côté inférieur du projecteur.

Après que le carter double du film a été appliqué sur le projecteur, la barre d'appui est passée à travers le manchon dans le carter et vissée lorsqu'elle est placée sous l'angle d'inclinaison requis. La grande molette permet de déplacer la lampe de projection dans le sens horizontal, la petite permet de l'orienter en hauteur.

Le réglage correct du dispositif à diapositives est décrit dans "Les instructions d'installation FP3, N 403". Un microinterrupteur commandé par la coulisse à diapositives est inséré en série avec le conduit de la lampe de projection. Il coupe la lumière lors du passage de la diapositive.

L'équipement de mesure comporte un voltmètre et une résistance variable. Celle-ci permet d'égaliser le rendement lumineux au cas où deux projecteurs sont utilisés.

Les figures 1, 3, 4, 5 et 6 se rapportent à la version nouvelle.

Les figures 2 et 3 se rapportent à la version ancienne. Le numéro de code du câble de la cellule photosensible est R 287 KA/02AA0 et la fiche de ce câble porte le numéro de code 977/F05. La figure 5 représente le schéma de principe du circuit de changement d'images.



**PHILIPS**  
SERVICE CINEMA EINDHOVEN

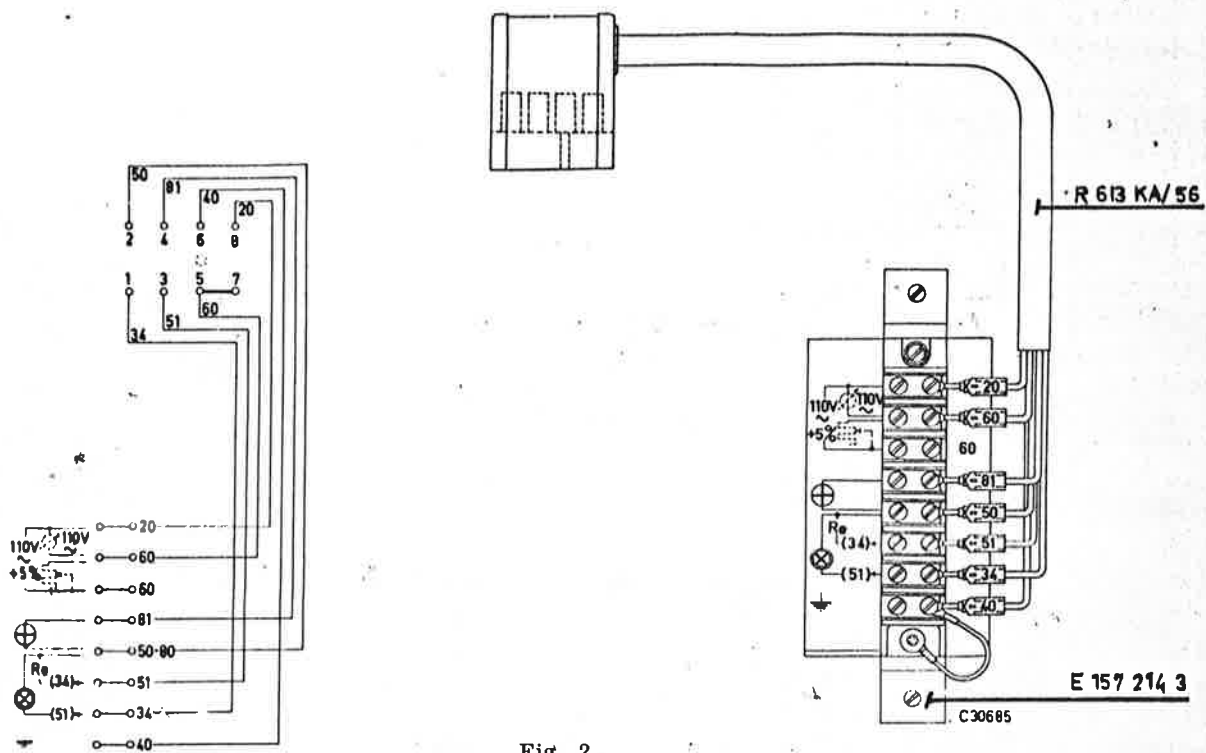
TYPE MT.11/00  
VOET FP 3.

VOETEN EN WIPPEN

701

1-9-64

9-5



# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8731/00

VOET FP 3.

VOETEN EN WIPPEN

701

1-9-64

4-5

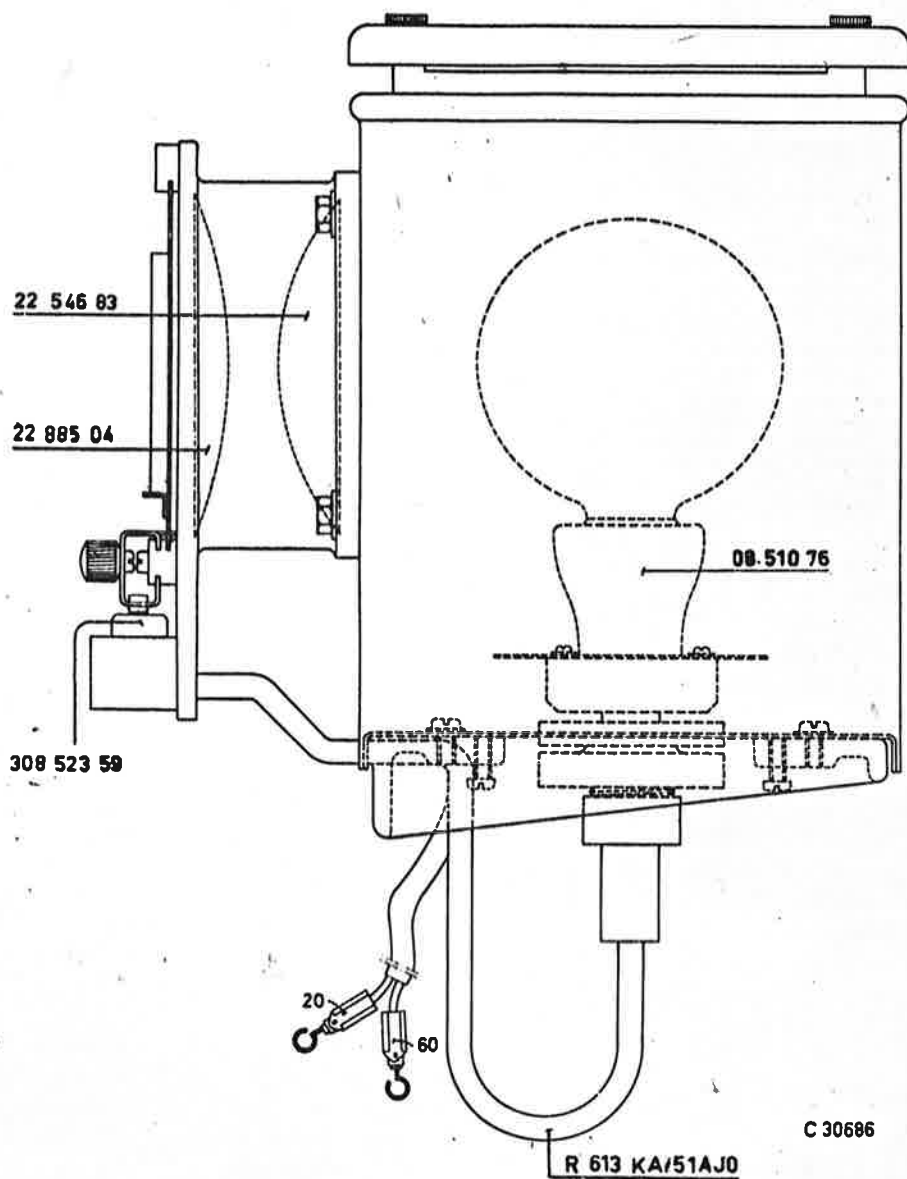


Fig. 3

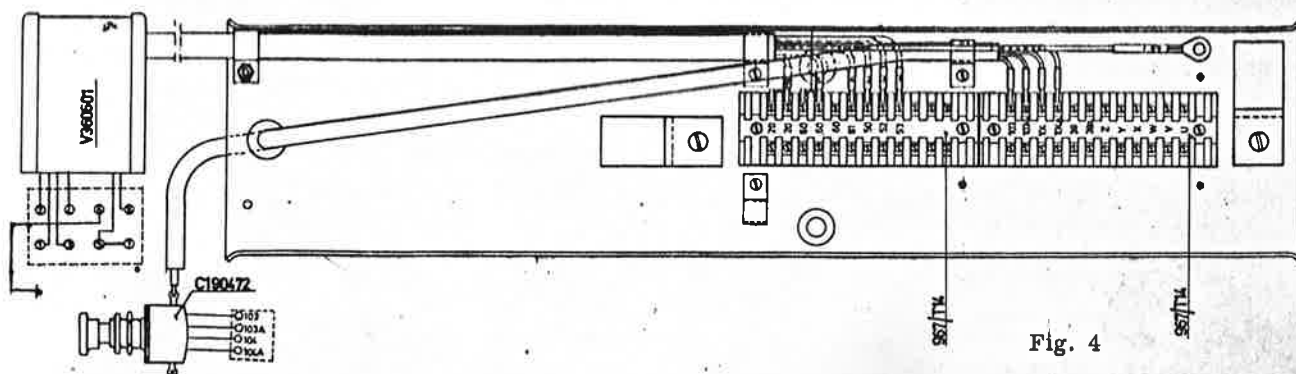


Fig. 4



# PHILIPS

SERVICE CINEMA EINDHOVEN

TYPE: 8731/00  
VOET FP 3.

VOETEN EN WIPPEN

701

1-8-64

5-5

Fig. 5

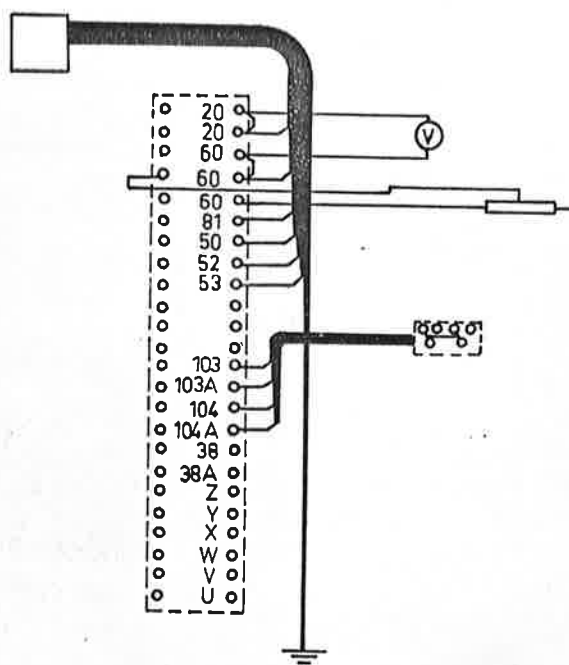
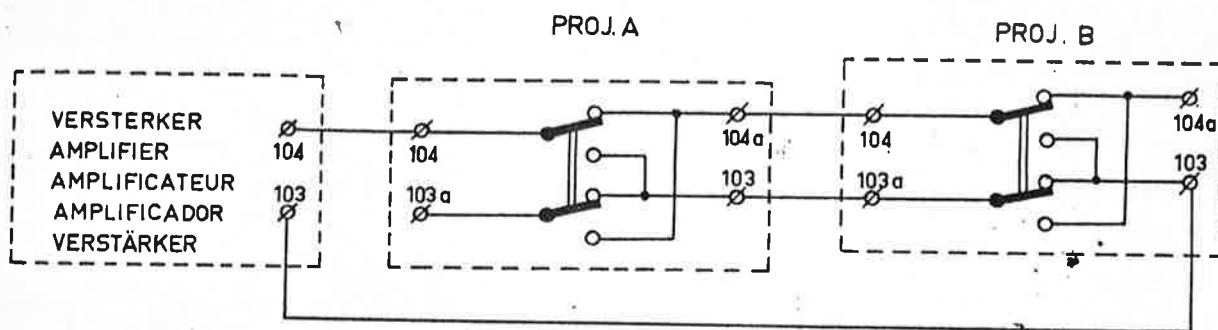
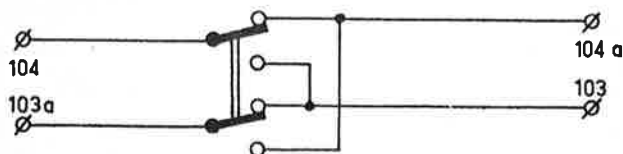


Fig. 6

# PHILIPS *Service*



15-2-68	8710 - FP3	Ed 22
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## Information

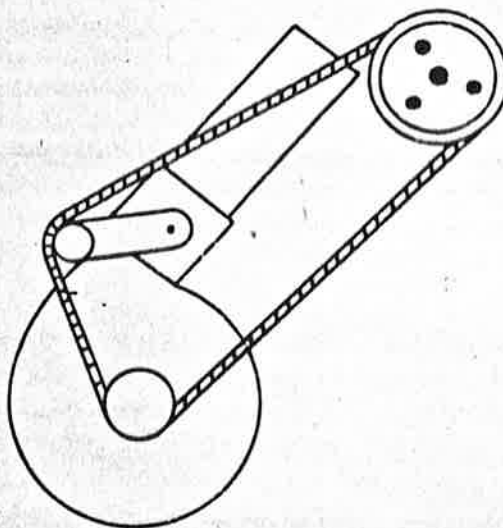
It is possible that motor drive belt 4822 358 10035 is slightly too long.  
This can be remedied by adjusting the tensioner as shown in the figure.

Es kann vorkommen, dass Motorantriebsriemen 4822 358 10035 etwas zu lang ist.  
Der Spanner ist dann gemäss unterstehender Abbildung zu stellen.

Het is mogelijk, dat de motor aandrijfriem 4822 358 10035 iets te lang is.  
Dit kan verholpen worden door de spanner zo te stellen als aangegeven in de figuur.

Il peut arriver que la courroie d'entraînement 4822 358 10035 soit quelque peu trop long.  
Il faut en l'occurrence régler la tension comme indiquée dans la figure.

Puede ocurrir que la correa de accionamiento de motor 4822 358 10035 sea un poco demasiado larga.  
Esto puede remediarse ajustando el tensor en la forma indicada en la figura.



**PHILIPS***Service*

25-4-1969

FP3 - 8710

Ed 31

**Information**

From now on the following aperture plates should be ordered from Central Prof. Service and not from the ELA Dept.

Aperture plates for formerly supplied FP3 projectors and for portable 35-mm projectors (both up to serial number 70000)

Old order No.	Description	
C1 607 32 3922 836 07320	Aperture plate for CinemaScope films; aspect ratio 1:2.34; to be fitted on the projector instead of plate 22 519 41 )	4822 451 10033
C1 607 69 3922 836 07690	Aperture plate for standard films; aspect ratio 1:1.37; to be fitted in aperture plate 4822 451 10033	4822 451 10014
C1 607 33 3922 836 07330	Aperture plate for Wide-Screen films; aspect ratio 1:1.85; to be fitted in aperture plate 4822 451 10033	4822 451 10034
C1 704 50 3922 837 04500	Aperture plate for Wide-Screen films; aspect ratio 1:1.85; to be fitted in aperture plate 22 519 41 )	4822 451 10035

) mounted on the projector when supplied.

The following parts have been added to portable projector 8710-FP3

Complete lamphouse with mirror	4822 693 50078
Spring for skate-pressure adjustment	4822 492 30819
Shutter	4822 515 40076
Lower pad roller assy.	4822 525 30014
Pulley of shutter shaft	4822 528 80403
Tensioning roller with lever	4822 528 90171
Pin for lateral pressure roller	4822 535 70339
Balance spring of lens unit	4822 492 20821
Threaded rod for focusing the objective	4822 535 80452
Centrifugal switch assy.	4822 693 50076

Van heden af moeten onderstaande beeldvenstermaskers bij de Centrale Prof. Service afd. en niet meer bij de ELA afd. worden besteld.

Beeldvenstermaskers voor vroeger geleverde projectoren FP3 en draagbare 35-mm projectoren (beide tot serienummer 70'000)

Oud nestelnummer	Omschrijving	
C1 607 32 3922 836 07320	Masker voor CinemaScope-films; verhouding 1:2.34; in plaats van masker 22 519 41 ) in de projector te monteren	4822 451 10033
C1 607 69 3922 836 07690	Masker voor normaalfilm; verhouding 1:1.37; te monteren in masker 4822 451 10033	4822 451 10014
C1 607 33 3922 836 07330	Masker voor Wide-Screen films; verhouding 1:1.85; te monteren in masker 4822 451 10033	4822 451 10034
C1 704 50 3922 837 04500	Masker voor Wide-Screen films; verhouding 1:1.85; te monteren in masker 22 519 41 )	4822 451 10035

) bij levering in de projector gemonteerd.

De volgende onderdelen zijn toegevoegd aan de portable projector 8710 - FP3.

Compleet lamphuis met spiegel	4822 693 50078
Veer voor scheendrukinstelling	4822 492 30819
Vlinder	4822 515 40076
Complete ruit (onder)	4822 525 30014
Riemschijf van vlinderas	4822 528 80403
Spanrol compleet met arm	4822 528 90171
Pen voor zijdrukrol	4822 535 70339
Balansveer van lens unit	4822 492 20821
Draadstang voor objectiefscherpstelling	4822 535 80452
Centrifugaalschakelaar compleet	4822 693 50076



Désormais, les caches suivants doivent être commandés auprès du Central Prof. Service et donc pas plus auprès du Dépt. ELA.

Caches pour les projecteurs FP3 et pour les projecteurs portatifs pour films de 35 mm fournis antérieurement (les deux types jusqu'au No de série 70 000)

Ancien No de commande	Désignation	Nouveau No de commande
C1 607 32 3922 836 07320	Cache pour films CinémaScope; rapport d'image 1:2,34; à monter dans le projecteur au lieu du cache 22 519 41 )	4822 451.10033
C1 607 69 3922 836 07690	Cache pour films normaux; rapport d'image 1:1,37; à monter dans le cache 4822 451 10033	4822 451 10014
C1 607 33 3922 836 07330	Cache pour films panoramiques; rapport d'image 1:1,85; à monter dans le cache 4822 451 10033	4822 451 10034
C1 704 50 3922 837 04500	Cache pour films panoramiques; rapport d'image 1:1,85; à monter dans le cache 22 519 41 )	4822 451 10035

) monté dans le projecteur fourni

Les pièces suivantes ont été ajoutées au projecteur portatif 8710 - FP3.

Lanterne complète avec miroir	4822 693 50078
Ressort pour réglage pression du patin	4822 492 30819
Obturateur	4822 515 40076
Galet complet (inférieur)	4822 525 30014
Poulie de l'axe d'obturateur	4822 528 80403
Galet de tension complet avec levier	4822 528 90171
Broche pour galet pression latérale	4822 535 70339
Ressort d'équilibre de l'ens. lentilles	4822 492 20821
Tige filetée pour focalisation de l'objectif	4822 535 80452
Ens. commutateur centrifuge	4822 693 50076



Ab heute müssen untenstehende Bildmasken bei der Zentralen Service Abtlg. und nicht bei der ELA Abtlg. bestellt werden.

Bildfenstermasken für früher gelieferte Projektoren FP3 und für den tragbaren 35-mm-Projektor (beide bis Seriennummer 70 000)

Alte Bestellnummer	Beschreibung	Neue Bestellnummer
C1 607 32 3922 836 07320	Maske für CinemaScope-Film Seitenverhältnis 1:2,34; anstelle Maske 22 519 41 ) in den Projektor zu montieren	4822 451 10033
C1 607 69 3922 836 07690	Maske für Normalfilm Seitenverhältnis 1:1,37; zu montieren in Maske 4822 451 10033	4822 451 10014
C1 607 33 3922 836 07330	Maske für Breitbildfilm Seitenverhältnis 1:1,85; zu montieren in Maske 4822 451 10033	4822 451 10034
C1 704 50 3922 837 04500	Maske für Breitbildfilm Seitenverhältnis 1:1,85; zu montieren in Maske 22 519 41 )	4822 451 10035

) bei Ablieferung im Projektor montiert.

Folgende Einzelteile sind dem tragbaren Projektor 8710 - FP3 hinzugefügt:

Vollständiges Lampenhaus mit Spiegel	4822 693 50078
Feder für Kufendruckeinstellung	4822 492 30819
Blende	4822 515 40076
Andruckrolleneinheit (unten)	4822 525 30014
Riemenscheibe der Blendenwelle	4822 528 80403
Spannrolleneinheit mit Arm	4822 528 90171
Stift für Seitenandruckrolle	4822 535 70339
Symmetriefeder des Objektivs	4822 492 20821
Gewindestange für Bildschärfereinstellung	4822 535 80452
Zentrifugalschaltereinheit	4822 693 50076

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En lo sucesivo, los marcos siguientes deben pedirse al Dept. Central de Servicio y no al Depto. ELA.

Marcos para los proyectores FP3 y los proyectores portátiles de 35 mm anteriormente suministrados (hasta el No de serie 70 000)

Antiguo No de pedido	Denominación	Nuevo No de pedido
C1 607 32 3922 836 07320	Marco para películas CinemaScope; relación de aspecto 1 : 2,34; a montar en el proyector en lugar del marco 22 915 41 )	4822 451 10033
C1 607 69 3922 836 07690	Marco para películas normales; relación de aspecto 1 : 1,37; a montar en el marco 4822 451 10033	4822 451 10014
C1 607 33 3922 836 07330	Marco para películas de imagen ancha; relación de aspecto 1 : 1,85; a montar en el marco 4822 451 10033	4822 451 10034
C1 704 50 3922 837 04500	Marco para películas de imagen ancha; relación de aspecto 1 : 1,85; a montar en marco 22 915 41 )	4822 451 10035

) montado en el proyector suministrado.

Las piezas siguientes han sido anadidas al proyector portátil 8710 - FP3.

Unidad de caja de lámpara con espejo	4822 693 50078
Resorte para ajuste de presión de los patines	4822 492 30819
Obturador	4822 515 40076
Unidad de rodillos presor (lado inferior)	4822 525 30014
Polea del eje del obturador	4822 528 80403
Unidad de rodillo tensor con brazo	4822 528 90171
Perno del rodillo de presión lateral	4822 535 70339
Resorte de simetría de la unidad del objetivo	4822 492 20821
Barra roscada para enfoque del objetivo	4822 535 80452
Unidad de conmutador centrífugo	4822 693 80076

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# PHILIPS

## Projektor type FP 3.

### Alminnelige regler for smøring:

1. Rens de forskjellige deler før de smøres.
2. Film, linser og lydoptik må aldri komme i berøring med fett eller olje.
3. Bruk alltid et rent filter når oljen fylles på rykkehjulsmechanismen.
4. Fjern all overflødig olje eller fett.
5. Bruk bare de foreskrevne olje- og fett-typer.

Henvisning til figur.	Ukentlig for maks. 25 timers kjøring pr. uke	Smøringsinstruksjon
B 1	a) Styrevalsene på toppen av filmporten	<u>En dråpe BSSO HANDY OIL.</u>
	b) Tappen på trykkskinnen.	
	c) Rykkehjuls-aksens frontlager.	
	d) Valsene ved transportøren.	
	e) Lagringen for bildeforstilleren	
	f) Remstrammervalsen.	
	g) De mekaniske deler for spole- boksens forriglingsbryter.	

Henvisning til figur.	Hver 14. dag. (Ca. 50 timers kjøring).	Smøringsinstruksjon
B 2	Korsboksen	<p>Fyll mekanismen opp til midt på oljestandeglasset ca. 12 ml med <u>PHILIPS grafittolje, type EL 4800</u> eller i en nødsituasjon, når denne oljen ikke kan skaffes, med medium projektorolje, type 3672. Gå frem på følgende måte:</p> <ol style="list-style-type: none"><li>1. Skru av lokk I (fig.) og tapp av den gamle oljen.</li><li>2. Skru lokk I på igjen.</li><li>3. Skru av lokk II og fyll på ny olje.</li></ol> <p><u>Bruk alltid absolutt ren olje og ren trakt; den minste forurensning kan ødelegge mekanismen.</u></p>

Henvisning til figur.	Månedlig	Smøringsinstruksjon
--------------------------	----------	---------------------

B 4	Aksø for filmbrudd-bryter	En dråpe ESSO HANDY OIL.
-----	---------------------------	--------------------------

C 4	a) Sleider og skrue for objektiv-holderen. b) Kulelagrene på lydhodets trykkvalse.	Kardangolje, type 8657.
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Henvisning til figur.	Bare ved fullstendig overhaling	Smøringsinstruksjon
--------------------------	------------------------------------	---------------------

D r	Kulelagrene på: a) motoraksel. b) transporterakselen. c) korsvenderakselen.	Kulelagerfett, type EL 485
-----	--	----------------------------

E r	a) Kulelagrene på lydakselen b) Mekanismen og kulelagrene på sentrifugalbryteren.	ESSO HANDY OIL. Disse delene må lepe meget jevnt.
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C r	holder for lydhodets trykk- valse.	Kardangolje, type 8657.
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#### Spolebokser.

##### Økentiigt:

- a) Smør valbene og deres aksler med en dråpe ESSO HANDY OIL.
- b) Drei fettkoppen på spoleboksens øvre spindel en halv omgang mot høyre, hvis nødvendig fyll den med Konsistensfett, type EL 4851.

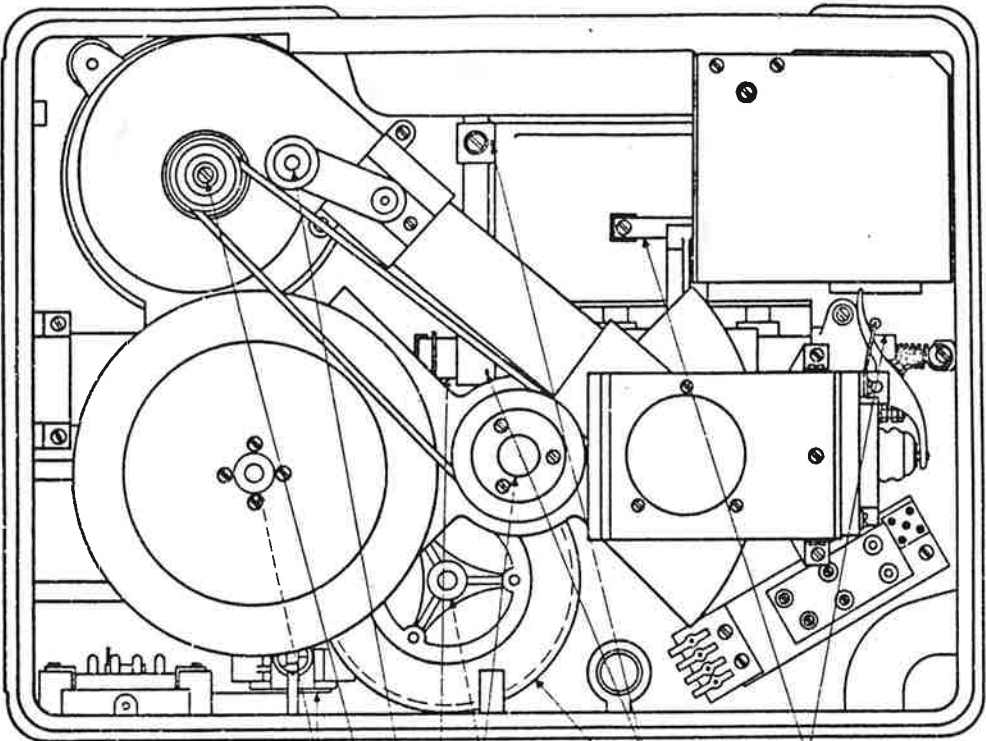
##### Månedlig:

Smør i løkkiven på underoppvikleren på 600 m spolebokser med litt Kardangolje, type 8657.

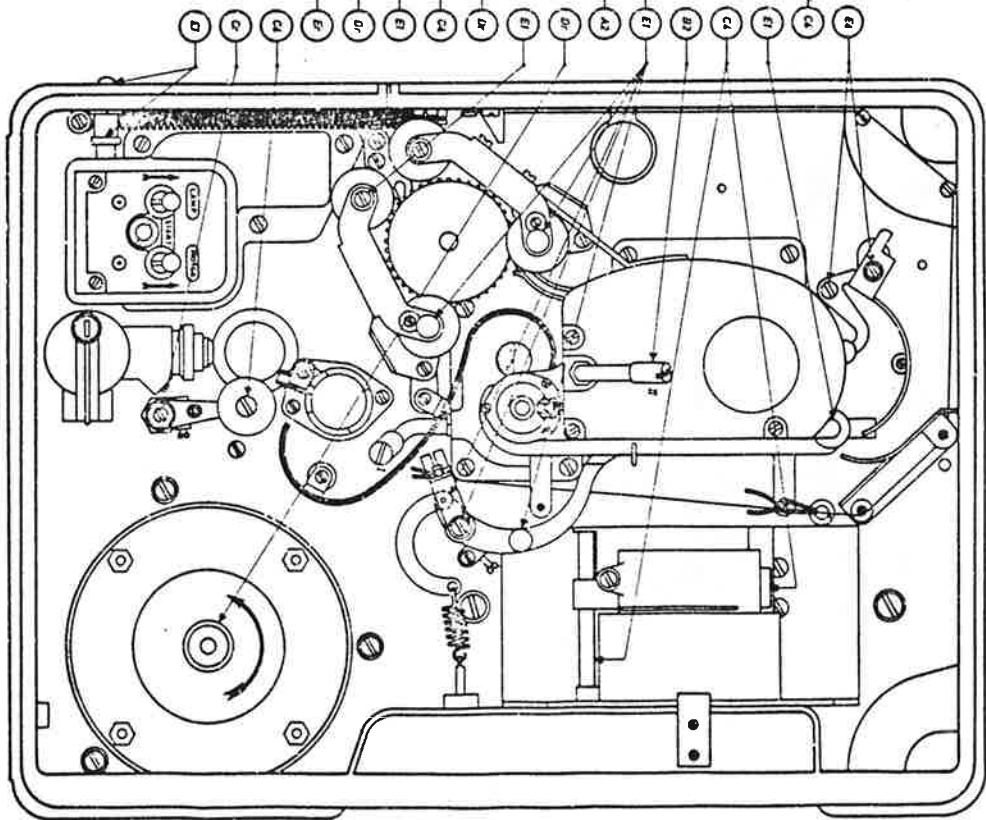
##### Bare ved fullstendig overhaling:

- a) Smør stopejernskiven på underoppvikleren på 1200 m eller 1800 m spolebokser med Konsistensfett, type EL 4851.
- b) Smør kulelagrene på nedre spoleaksel med kulelagerfett, type EL 4850.





- 10 BAL-BOUARD BRASS  
BRASS POUR ROULEMENTS A BILLES  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 9 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 8 BAL-BOUARD BRASS  
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- 3 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 2 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 1 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS



- 20 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 19 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 18 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 17 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 16 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 15 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 14 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 13 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 12 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS
- 11 BAL-BOUARD BRASS  
BRASS POUR COULETTES  
ROULEMENTS  
ROULEMENTS



A GRAPHITE GREASE  
GRASSE AU GRAPHITE  
GRASA GRAFITADA  
GRAPHITFETT  
GRAFJETVET

B GRAPHITE OIL  
HUILE AU GRAPHITE  
ACEITE GRAFITADA  
GRAPHITÖL  
GRAFJETOLIE

C CARDAN OIL  
HUILE POUR CARDAN  
ACEITE PARA CARDANES  
KARDANÖL  
CARDANOLIE

D BALL-BEARING GREASE  
GRASSE POUR ROULEMENTS A BILLES  
GRASA PARA COJINETES  
KUGELLAGERFETT  
KUGELLAGERVET

E ESSO HANDY JOE

F ONLY DURING OVERHAUL  
SEULEMENT A LA REVISION  
SOLAMENTE EN OCASION DE REVISION  
NUR BEI ÜBERHOLUNG  
ALLEEN BIJ REVISIE

1 WEEKLY  
CHAQUE SEMAINE  
SEMANALMENTE  
WÖCHENTLICH  
WEEKLIJKS

2 EVERY FORTNIGHT  
Tous LES QUINZE JOURS  
CADA QUINCE DIAS  
VIERZEHNTÄGIG  
OM DE TWEE WEKEN

3 MONTHLY  
CHAQUE MOIS  
MENSUALMENTE  
MONATLICH  
MAANDELIJKS

